AK30

USER'S MANUAL

PC PROGRAM FOR WINDOWS 11/10/8/ 7 AND FUTURE VERSIONS
32 bit (x86) and 64 bit versions

AK30
AK30Mini
AK30_FR
AK30Mini_FR
ATOM
V3.00
with images and explanations to French versions (_FR)

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...
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V1.60 updated with LV2020, 32 and 64 bit versions available
V2.00 small enhancements
V2.50 all programs combined to one with a main menu
V3 Generation 5 for G5 level insturments

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1. Introduction and Taking into Use

This document instructs you on how to use the **AK30, ATOM** and **AK30Mini** PC user interface programs with your portable meter **AK30** and **MK30R** and the on-line meter **AK40**. Also the special models AK30 and AK40 are fully supported by these programs. Refer to the instrument's own user's manual covering details using the meter itself. This software is not compatible with any other instruments at this writing and is specifically tailored for **AK30 / MK30R** derivatives. Also the corresponding programs translated to French language are shown as graphics but explanations are in English.

The latest program version has a general startup program which allows launching any of the programs by selection.

These programs have a number of features most useful for users of **AK30** and **MK30R** moisture meters. One can acquire real-time data from the meter, download memory banks and setup some features of the meter available, through the serial port. Rest of the features are set up via the integrated keyboard and display as is natural. A printer connected to the PC can be used for documentation as well as reporting to HTML files. All acquired and downloaded data is saved into traditional IRMA7 format files which are compatible with all spreadsheet programs (textual ASCII data). This program is a true multitasking system capable of performing simultaneously several tasks at the same time. You can operate with the memory bank system and control it fully while at the same time acquiring e.g. real-time data for your quality control system. The program has been made as simple as possible to use reasonably, especially the AK30Mini. There are no menus at all (except some associated with the graphical displays) and everything you see is what you get. All actions are started by pressing buttons and meter status is indicated with various LEDs or numeric indicators. You are using a virtual instrument in your PC though there is a true instrument behind it producing the data and may even be wireless connected to your PC at distance.

1.1 Installation of the PC program

Important Notices for Windows 7,8, 10,11 Users

Before starting, it is important to make sure you have the administrator's rights in your PC to install programs, read and write files etc. with full and widest possible rights. If not, ask your computer manager at the IT department to do this phase for you or switch the PC user to an administrator. It is possible that after a successful installation, you encounter strange error messages when files are tried to be saved to a hard disk. These problems are mostly due to insufficient file writing rights. If it is about a data file saving when the data Acquisition is stopped, the system refuses to open a file for writing (a typical case of insufficient R/W rights). You have as alternatives increasing the user rights or separately allowing full file rights to that particular folder you are trying to access. You can also find another folder for file saving which is not limited in access (e.g. My Documents, My Folders etc.). Also, if right after starting the program, an error message appears, it is likely from a missing configuration file of the program itself. This is not dangerous at all since you are about to set up the program features first and then to save the configuration. Stay calm even if error messages appear and try to logically induce where they come from, if ever possible.

The PC program is installed as follows. Place the USB stick to a free USB receptacle and locate the program **setup.exe** for **AK30** or you can just start the **Visilab_installer.exe** which allows you to install the programs on the stick. Launch it and perform the installation accepting the selections, unless there is a reason to modify. Don't start any other installation sequence until the first one has been completed. You are ready to start working with this program. However, if this is the first time installation of any of Visilab software, you may have to restart the computer for the program items to be available. There may be other programs on the stick which are not listed in the Visilab_installer. Therefore we advise you to check the memory stick folder contents.

Locate the item in the Start -> Programs -> **AK30** and click it to start. You can also locate a shortcut of this program on your Desktop to easier start it in the future. Refer to your operating system manuals for details. In the following we will go through all the features available in this software. When meeting any error messages and dialogs, refer to Chapter 11 for solving those cases.

1.2 System Requirements

This software operates in Windows 11/10/8/7 environments if you have at least 550 MB of memory available. Hard disk space of 2GB is required for installation and starting the program. Archives will require more space. A 2GHz Pentium is the minimum CPU requirement but higher is recommended for Windows 11/10 /8 /7 users. The minimum screen size required by this program is 743 x 768 pixels. Smaller screens will lead to more cumbersome use of the program. Efficient use of multi-core computers is supported. The 32 bit versions available run fine in both 32 and 64 bit Windows. The 64 bit versions run **only** in 64 bit Windows.

1.3 Style Issues

In the English versions of both software, most oval buttons at any page start some action and are not left pressed down except for a short moment (a few exceptions exist, see below). Most rectangular buttons are settings which are either left as pressed down or are later updated to reflect the status of the meter. The indicator lights are statuses read from the meter or generated by the program and can not be changed by the user directly. Typically, they have either a grey or orange color. In some special cases, the color may be red to warn the user of some serious problem. You can always get a one-line description of every button, control and LED by moving your mouse cursor over it. There are some large oval buttons at several pages whose color when pressed down is bright yellow instead of the regular orange. They are left at their state until the user changes the settings. These buttons are used for example for acquiring data continuously. Also the Acquisition operation has a button like this. The purpose of this is to indicate the user to change himself the button's state. Each of these buttons have an indicator light at the left edge of the display to remind of their active use.

There are also LEDs for other operations whose momentary operation may take a longer time to finish, like downloading a library.

Remember also the philosophy of the **AK30** and **MK30R** series meters:

If some new setting or configuration is important, Save the configuration. Otherwise the meter will ignore any changes when restarted later.

2. Configuration Page

2.1 Configuring

Note that in the following we talk about "program" or "software" but we mean any/all of the programs handled in this manual: **AK30, AK30Mini, AK30 French, AK30Mini French**.

Before starting actual use of the program, you need to check the settings with yellow background (port and slave address). They need to be set before you can start communicating with the meter in **ON-LINE** state. The **port** selection is highly important and refers to the serial port your meter is connected with in your PC. Use only ports COM1 - COM255 or ASRL1-255 depending on your system. There are USB to RS232 adapters available for Windows 11/10/8/7 operating system in case you do not have any RS232 ports in your PC. Incorrect port selection will cause error messages when you try to start using the software. Use the grey arrow down button at the right end of the selector to choose from the list of available ports. This setting is saved but it is wise to check it. Refer to Figures 2. You can also use the Bluetooth wireless connection which is capable of operating within a range of 100 m in good conditions. MK30R is usually operated via Bluetooth wireless but it also has the USB as an option instead of Bluetooth with a switch selector.

Note that older units of model AK30 are limited in features but all revisions work alike, except some of the earliest meters do not support downloading of multiple memory banks at a time. Upgrading is recommended for AK30 if the wider downloading feature is requested. Contact Visilab or the nearest representative for details.

The meter's **slave address** is highly important for proper working of the meter. The default address is **1** but you may have changed it for some reason (with the meter's own keyboard). The allowed range is 1...255. Zero is reserved for the program itself (master) and can not be used for slaves. Using incorrect slave address will cause inoperable software with long delays between actions, messages like "No response" etc. If you have changed the address and can not remember it, press the Menu key in your meter and select 7=Communications to go changing/checking it. Refer to the moisture meter's User's Guide for details. The baud rate setting is always **115200** for the AK30 / MK30R portable meters. For AK40 meters, the setting may be either 9600 or 115200 bauds, depending on the initial setup of the meter itself. That depends on the length of the cables in delivery. Long cables prevent using the fast speed. The Bluetooth link allows the fast rate to be used irrespective of any cables.

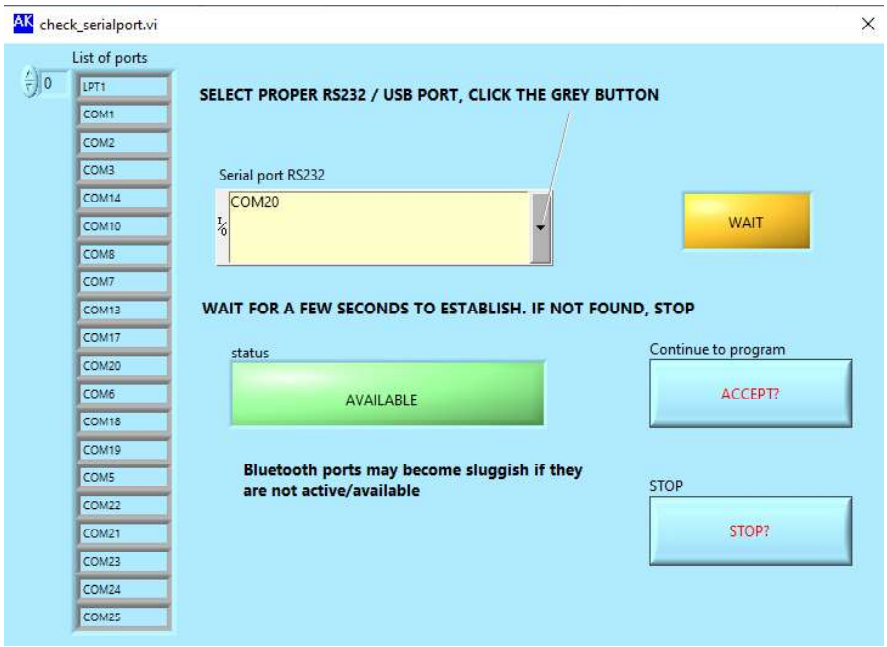
To properly save all library, meter configuration and data files, it is recommended to set the two fields in this same box as well. The AK30 file path is used for saving the library and meter configuration files in the future. The recommended path is **C:\AK30**. The data files generated during operation are saved into another directory whose path you can set in the lower dialog. The recommended path is **C:\AK30\DAT.** You can also use the small directory dialog buttons to the right to select and even create new paths. Leaving these folders undefined will soon lead to error messages and lost data.

Pressing the "Save settings" key will save the settings in this box when starting the next session and you don't need to return to this point later. Some of the programs have automatic saving after first use so you don't need to worry about that either.

Note that this software **always** saves traditional IRMA7 data files to the data file path you have defined. **You don't have any possibility of turning it off.** This will save you a lot of headache as all of your data is saved in the future. The only discomfort you may have is that you have to clean up the data file directory occasionally to prevent it overflowing physical memory limits. The typical data file size is about 30 kb for each run (4096 points) in Acquire task. Some of the French programs do not do automatic saving of data but you will need to tell the program it by pressing the relevant button.



The selector for the programs initially above and below is the next dialog to confirm the serial port to be used



The selector for the serial communications port

Baud rate selector for AK30/40
AK30 = 115200, AK40GW = 9600 or 115200
MK30R= 115200

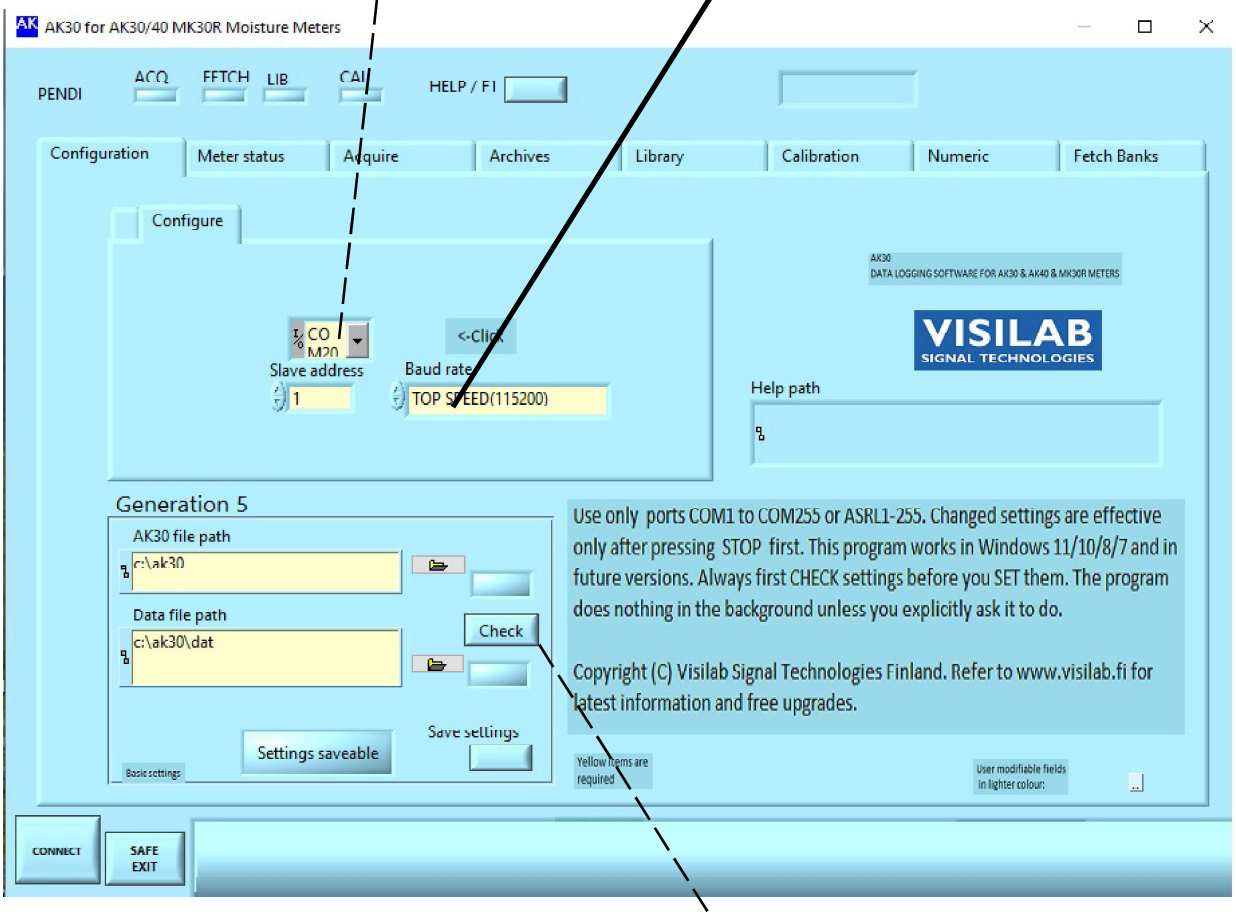


Figure 2a. The Configuration page in AK30

Test the existence and general availability of the suggested folders

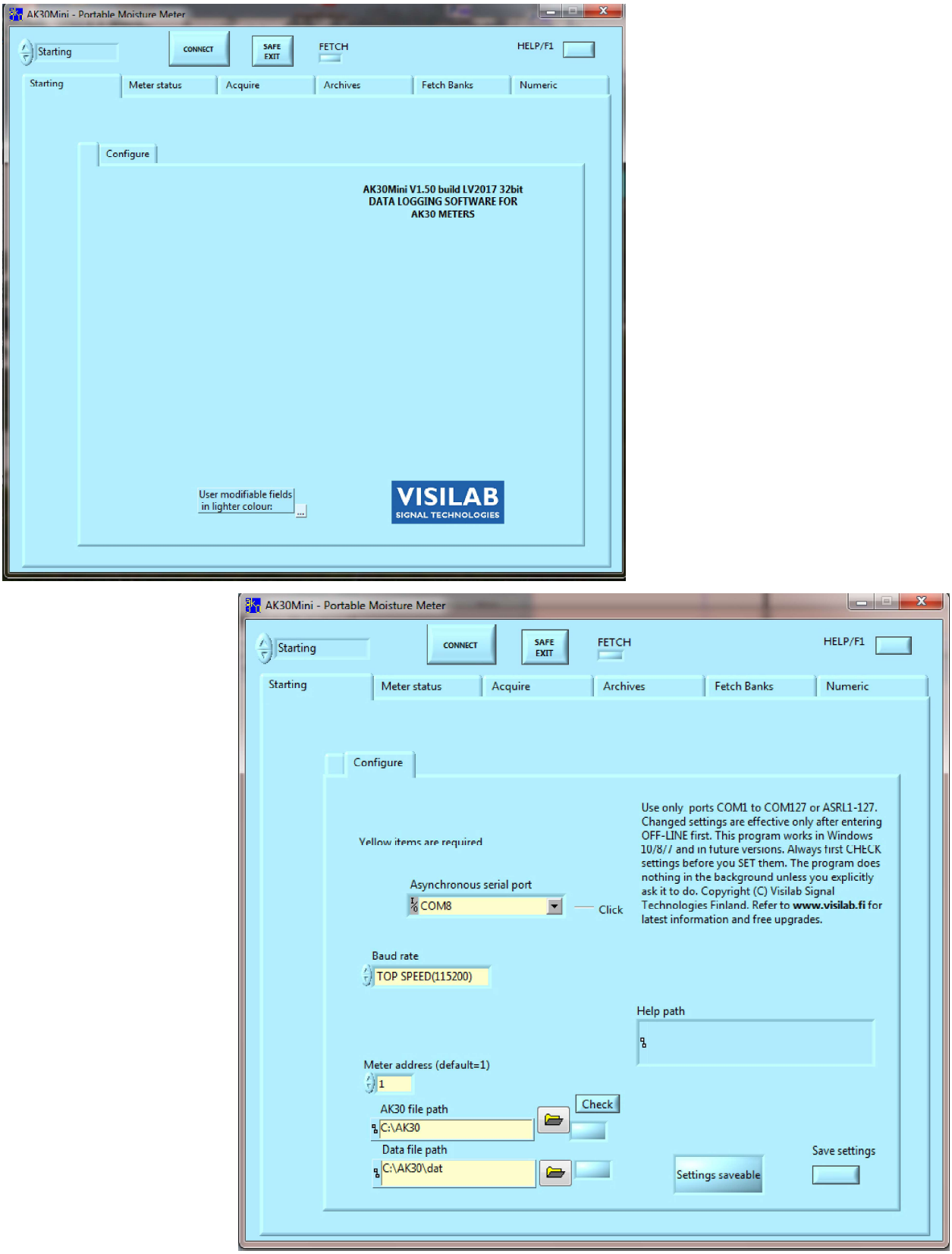


Figure 2b. The Configuration page in AK30Mini

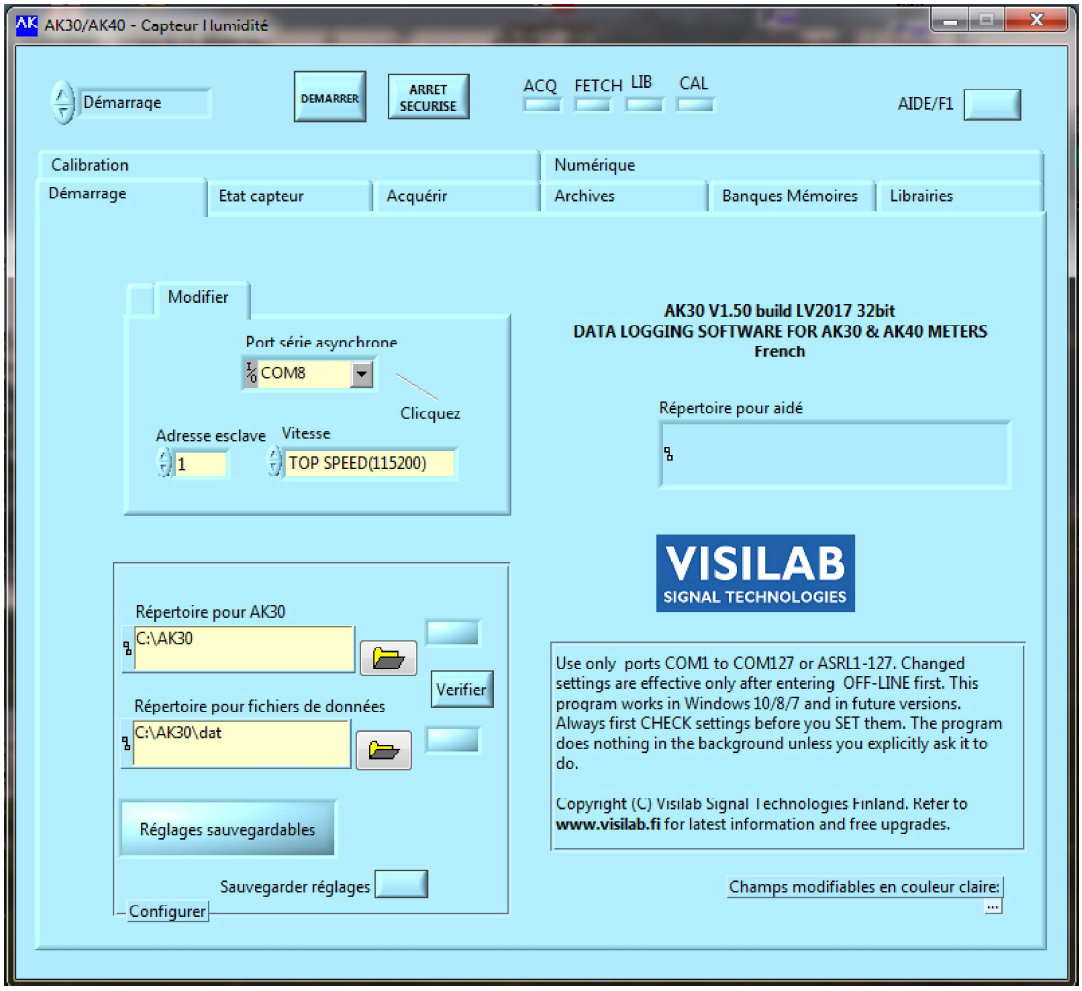
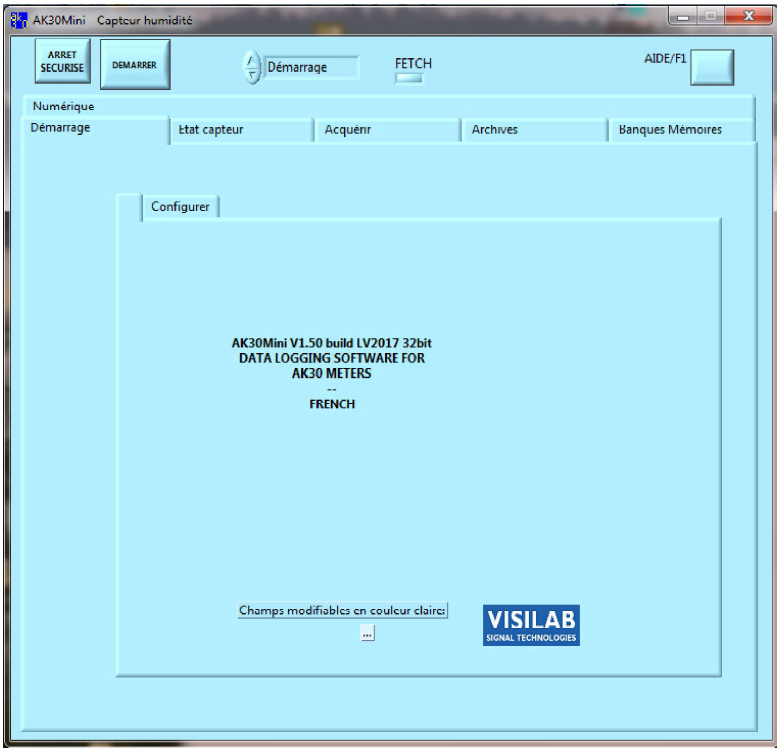


Figure 2c. The Configuration page in AK30 French version



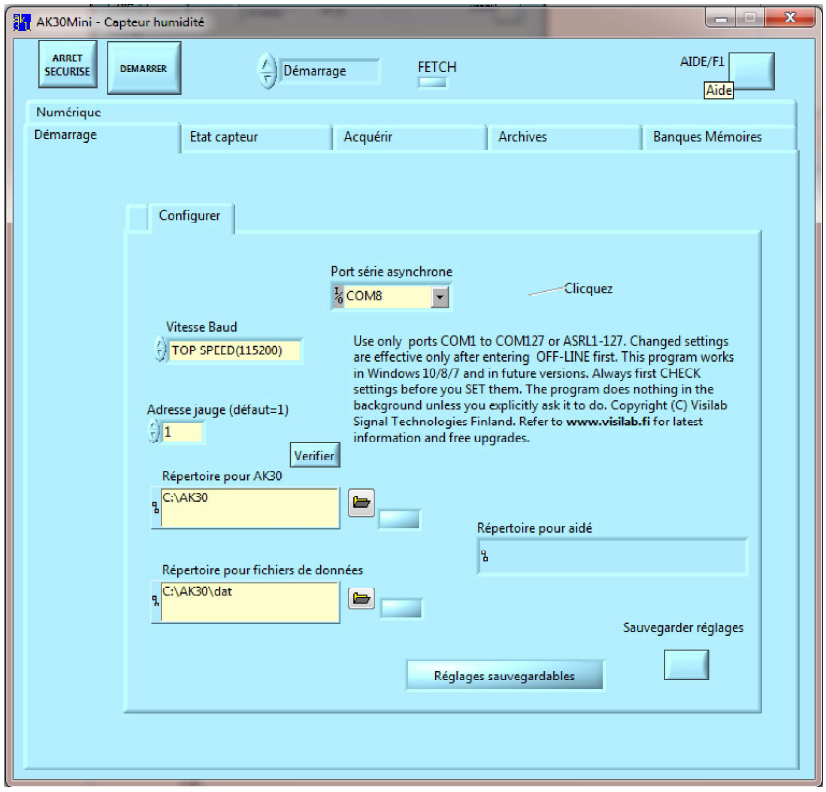


Figure 2d. The Configuration page in AK30Mini French version

Notice that changed settings are effective only after entering **Connect/ Disconnect**(or **DEMARRER / STOP** in the French version) first. The operations available in this software, except the Archives, are usable only if you have a moisture meter connected to the serial port. If you want to use the Archives page only and have no connection to the meter, that is OK if you have ANY serial port available in your PC. Then you can select that port and go ON-LINE and start working on the Archives page only. Attempts of using any features or commands referring to the meter will fail.

To start running the software, press the large button marked **"Connect"**. Pressing the same button (with name **"Disconnect"** at that time) again will return you to the same Configuration page after a few seconds. However, you need to have all pending operations stopped before doing that (yellow lights at the left edge). You will soon realize that there is a cover at the bottom of the screen preventing access to some buttons (English version only) and you can not see the selection display either. When you go **Connect**, the cover disappears and you can use them.

3. Meter Status Page

You can quickly check the meter settings by selecting the Meter status page. There, you can press the "CHECK STATUS" key to see all information possible of your meter. **Always do this first when entering this page!** The amount of data is very limited for model AK30 as its operation is mainly done with the built-in keyboard. You can also see the meter's serial number at the leftmost window. The button "Low power" reflects the powering status of the meter (**Normal / energy saving**). If you wish to turn the meter into **Low power state**, press this button and then press the "**UPDATE**" key. The following state is again an indication of the resulting meter status. The next button, "Beep", will cause an audible sound at the meter. Press it and then update. You should hear a short tone signal. See Figures 3. The operations of the French versions are very similar.

The second box marked "Documentation", allows the user to add text fields to each data file in this session. There are two optional buttons for selecting either a real printed report or a HTML file, put among other data files. The HTML report may have an associated JPG image file too. You can possibly use these files later in your own more comprehensive reporting. The settings in this box are not in the meter but in the AK30 program only and will be saved along with other program settings.

The third box offers downloading memory banks from the AK30 meter. You will need to press the CHECK button first to detect how many banks there are altogether. Then you can indicate with bank number range which of them should be downloaded one at a time. Edit the number in each filed and click the mouse elsewhere or press Enter. Then you can press Download to start collecting banks within the indicated range. Each bank is saved to its own file and the date and time of each bank's capture is saved with other data to the tail part. You can see the progress of this process and each bank's header/tailer data are momentarily shown in the text box to the right. Also a simple curve is displayed of each bank. If some error occurs, you can stop this process by pressing the Abort button.

The CHECK STATUS can always be used safely without activating anything. The UPDATE SETTINGS updates the meter with the settings visible on this page. **Think first before you press this one! Always first CHECK and perhaps, then UPDATE to make sure you do not change anything vital unintentionally.**

NOTE: Always CHECK first the settings before you UPDATE them. The program does nothing in the background unless you explicitly ask it to do.

The English AK30Mini and the French AK30 and AK30Mini programs have one more box available on this page. It is used for checking and showing the present calibration table name and for stepping up/down in the library. Pressing the UP/DOWN keys will right away change to a new table. If unsure, CHECK first and then make a change.

If you wish to save the incoming raw data files into Excel spreadsheet files, select the corresponding button on this page. All programs have it. There is a field marked as "Original stamp" which shows the original date and time stamp and the corresponding memory bank number of the data in the meter.

There is now a new button at the center for explicitly saving the meter's internal configuration. As the meter AK30/40's philosophy is to maintain the last saved configuration until explicitly saved, this allows the user to save it with the AK30 PC program. Else, it would be needed to do by the keyboard (Menu - Save keys in sequence). Note that the old configuration is really lost and the meter will behave in the present setup (calibration, timing etc.).

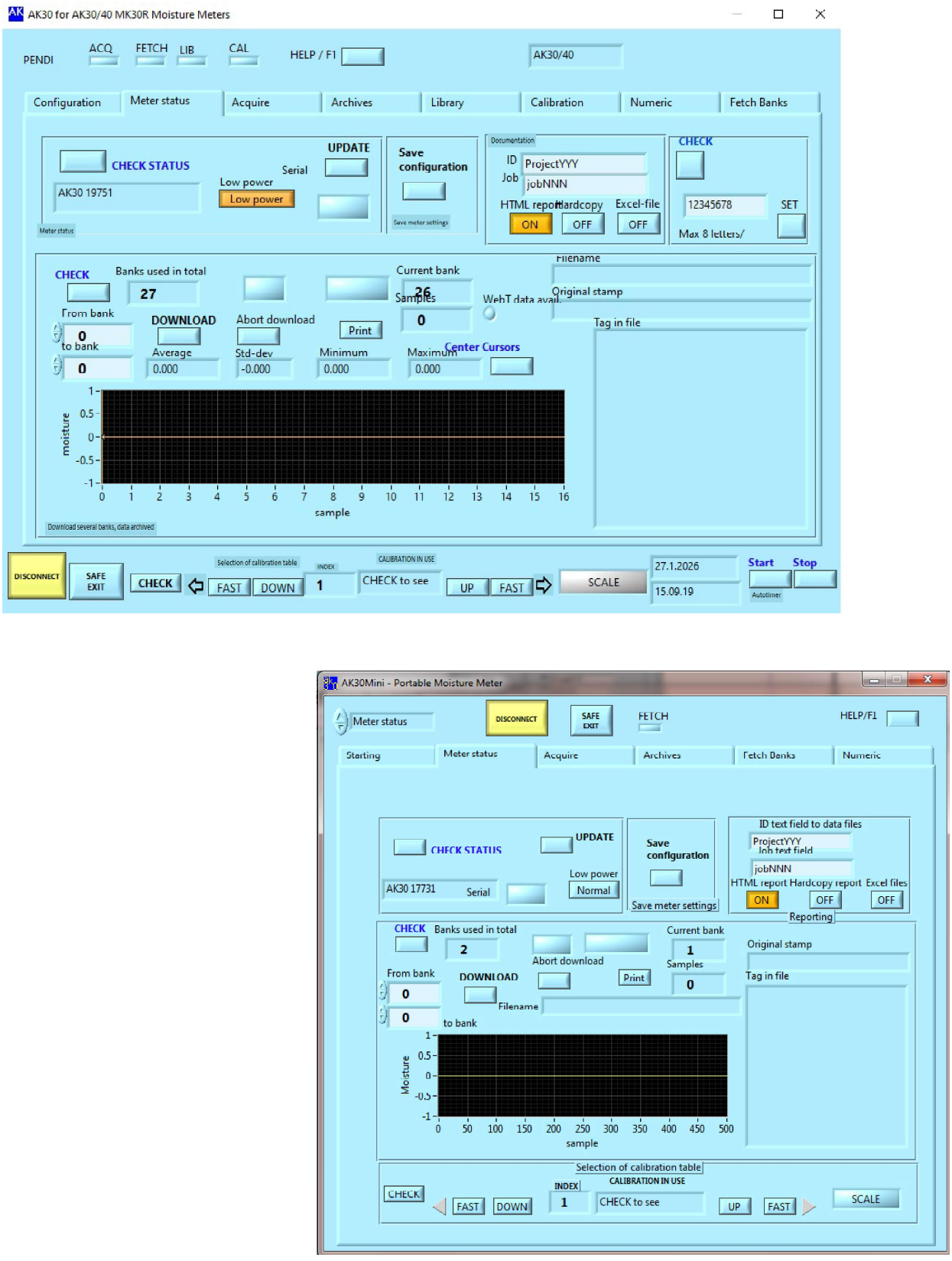


Figure 3a. The Meter status page, AK30 and AK30Mini

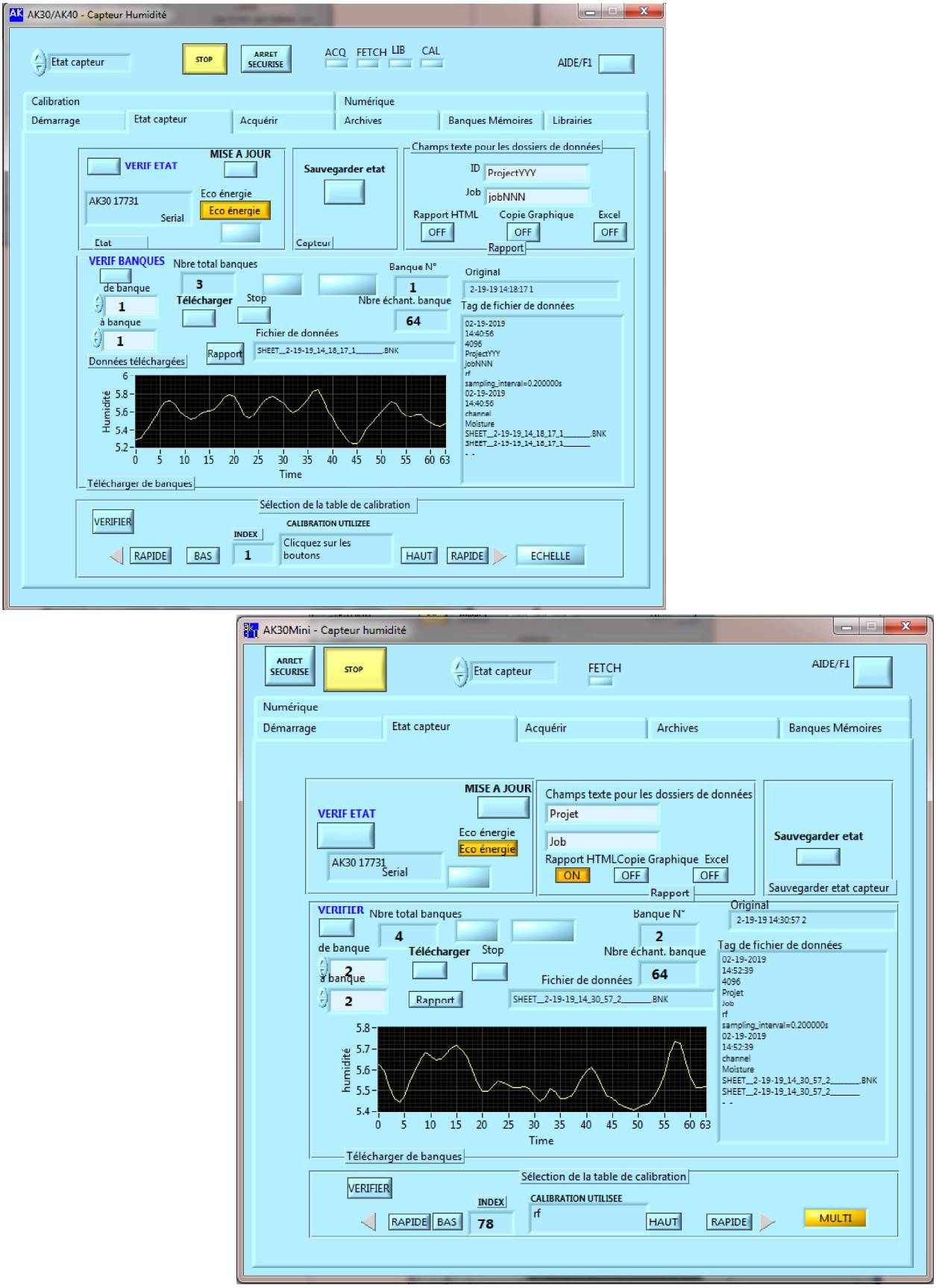


Figure 3b. The Meter status page, AK30 and AK30Mini, French versions

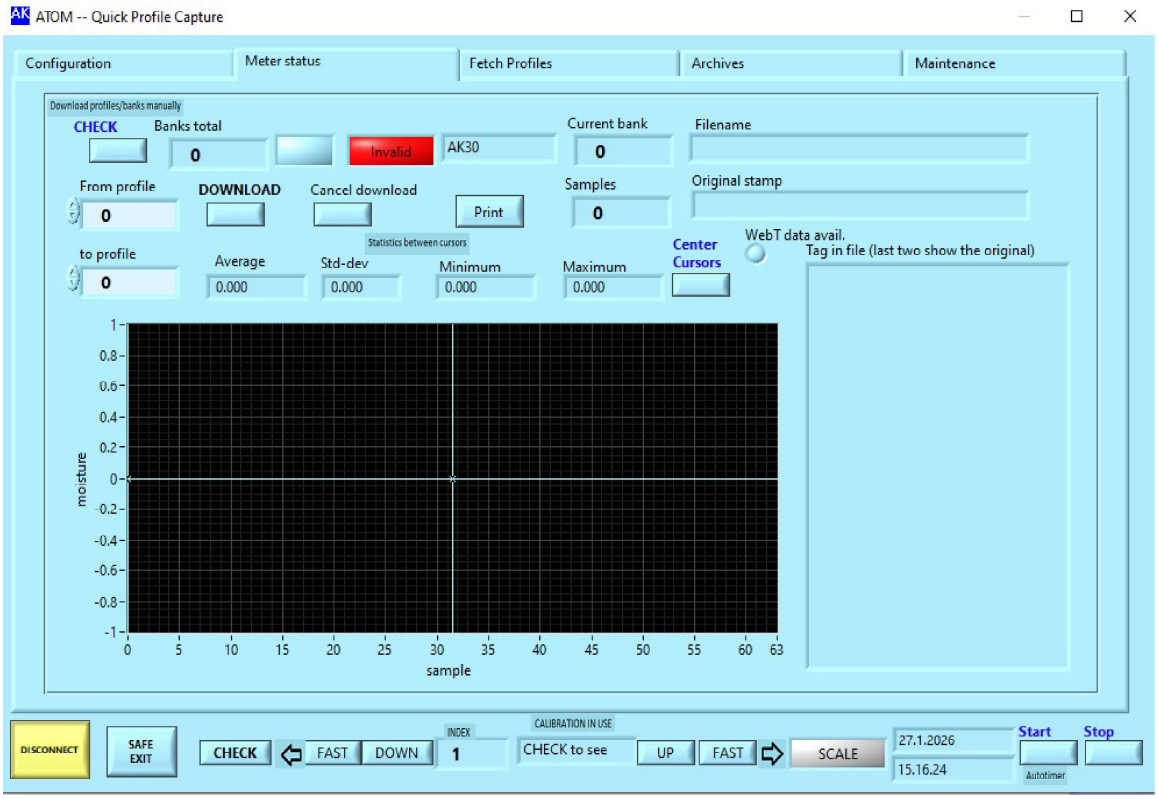


Figure 3c. The Meter status page in ATOM

4. Acquire Page

To start measuring right away, we assume you have the meter ready and pointed at some target paper. Go to Acquire page and press the large button, marked "START" to change it to "STOP". This will start data retrieval from the meter if the connection is working correctly. The graphic display shows the accumulating moisture values with automatic scaling. The time scale shows the correct time taken from your computer. Refer to Figures 4.

You can work fine with the default settings without ever touching any adjustments of the display. If you are interested, explore the possibilities available by clicking either the right or left button of your mouse with the cursor over some display control. Learn the possibilities by reading what is in the help messages or in the dialogs to change the zooming, scales and colors of your display. If your display gets mixed up, do not be alarmed. You can always restart the software or try to restore it by studying the menus. There are some control buttons connected to the display only to allow a selection of settings. We are not going to any further details in this about them. This same applies to the other graphical displays which are similar in features. This display does not have any cursors. The Memory banks page display does have and also the archives display. The cursors are used e.g. for determining the interval from which one calculates statistics of the moisture or one can directly read the values on the curve.

The button at the center is for printing the display graphics if you have activated any printing option. You do not have to print everything unless you really want to. All data is always saved into IRMA7 file format readable with any spreadsheet program too. You can also later retrieve the files on the Archives page.

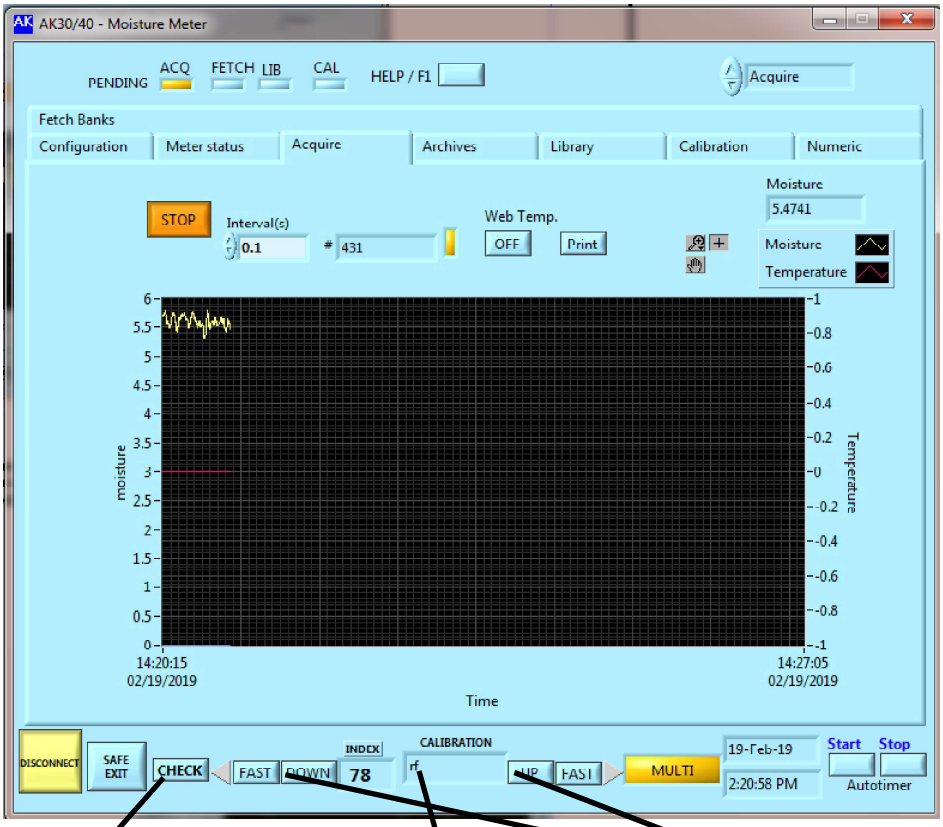
The small number display at the center together with a small LED indicator is the total sample counter. It shows the total number of samples acquired after the operation started. The LED indicates when data is actively inquired from the meter. From it, you can determine when the serial bus may be overloaded (LED lit all the time). That may cause slipping in time schedules (see below). The Acquisition operation will stop after having 4096 samples taken. It will then save data to a file (or a set of files as configured on the Configuration page). Then, it will restart acquiring to have the next set of 4096 points. This will continue forever until you explicitly stop the acquisition.

You can change the rate data is acquired by adjusting the time interval (0.05 to 3600 seconds) at the center box' "Interval" control. Overloading will happen if you try to acquire too many signals at a too fast rate. Changing the interval needs restarting the acquisition to take effect.

As you can see, there is an LED indicator at the left edge (ACQ) which is lit when you have started this operation. It is there to remind you of a pending operation which should be properly stopped before stopping the program. There are also some other operations which might interfere with this operation and therefore it is recommended to turn it off. **In principle, you can use most of the operations in this program simultaneously**. Of course, if you are uploading a new library to the meter, there is no sense in doing measurements at the same time as the calibration table in use may change suddenly and cause a transient to the moisture signal.

The buttons at the lower edge of the program display are used for checking/setting the current calibration table in the calibration library in the meter (AK30 programs). You can step up in the index or step down, either one entry at a time or ten entries at a time. The resulting entry is displayed at the center with data pertaining to it. Of course, all data and settings located in the meters themselves are always saved. In AK30Mini programs, the same buttons are located on the Meter Status page.

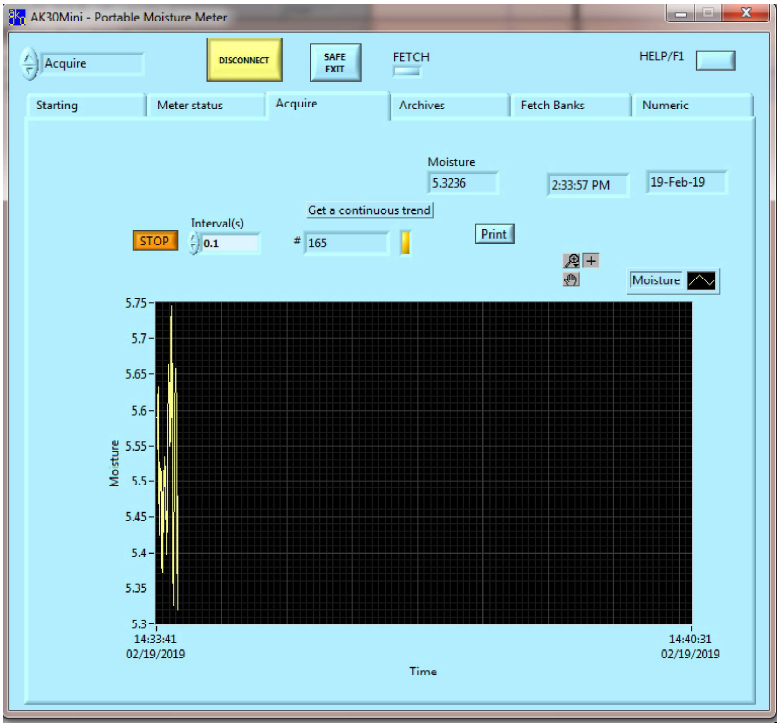
Figure 4a. The Acquire page, AK30 and AK30Mini

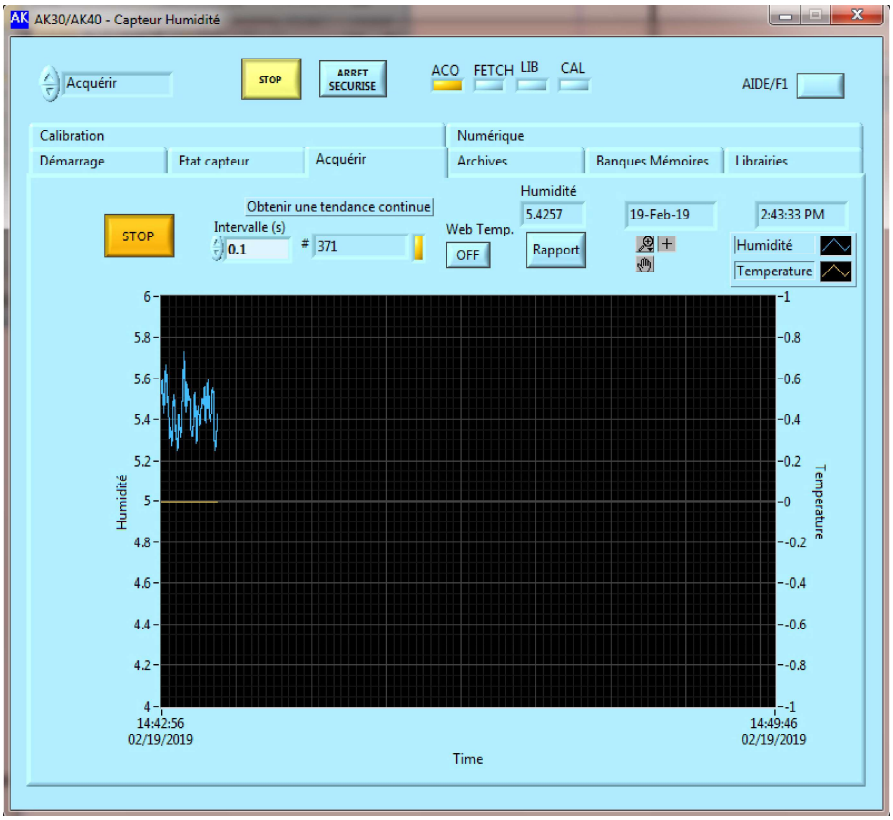


Change the current calibration by increasing/decreasing the index

Current calibration index, name and calibration mode

Check the current calibration index, name and calibration mode





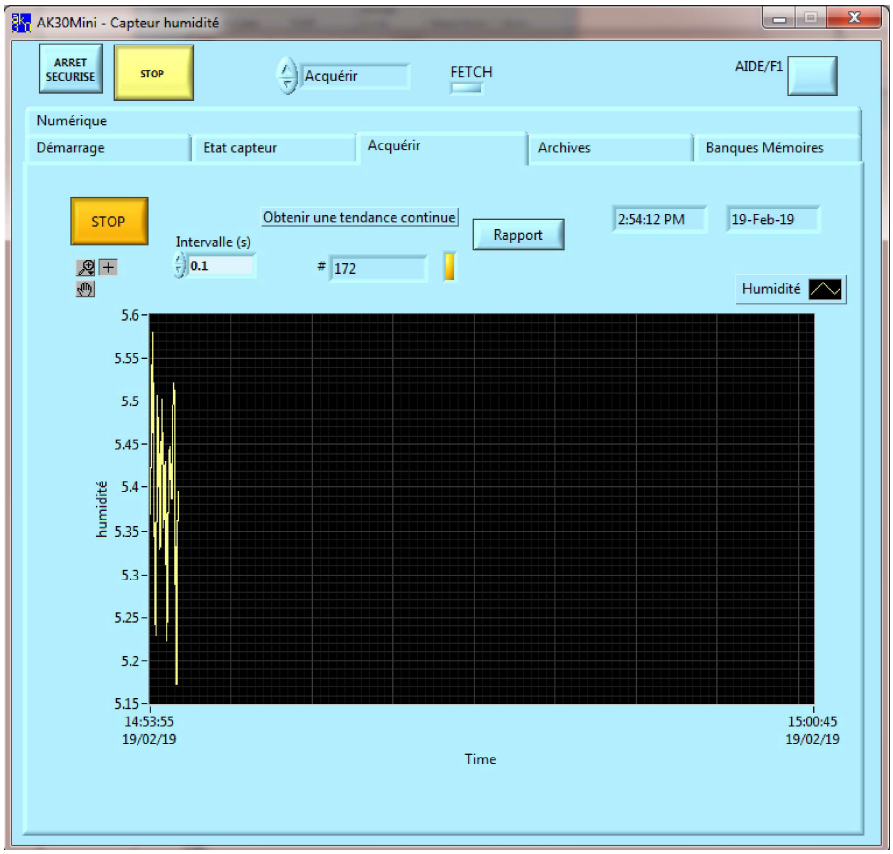


Figure 4b. The Acquire page, French versions for AK30 and AK30Mini

5. Fetch Banks Page

Figures 5 show you the looks of the Fetch Banks page. The memory bank system is a nonvolatile memory built into the meter capable of saving data at the fastest speed. AK30/AK40 have at least 820 independent banks with maximum 500 samples.

The Autotimer can be started manually with the large button at the bottom right. Stopping is done manually with the large button at the right or it will stop automatically as soon as the number of samples in the batch has been reached or the maximum number 500.

The memory banks can not be cleared with this program and will need the use of the meter's own menu system (e.g. the Service menu).

The basic idea of this page is to turn on the Checking. Then the program will regularly check the meter to see if any new banks have been saved while measuring with the meter. For this feature to operate, the meter needs to be connected to the PC all the time either with the RS232 cable or with the Bluetooth wireless connection. If the link is broken, this feature will stop functioning. When a new bank is found, it is automatically downloaded to PC. There is a field marked as "Original stamp" which shows the original date and time stamp and the corresponding memory bank number of the data in the meter.

On the display you have the downloaded data as a curve and two cursors in addition. If the cursors are not visible, click the grey buttons at the lower edge having crosses on them. The opening menu has an option "Center the cursors" button. You can use the cursors to calculate statistics automatically. The results will be seen at the four numerical displays at the right side. Grab the cursor at the vertical line and drag it to the desired position. The statistics are updated automatically. You can also change the scaling. The default vertical scaling is automatic.

To change the scales, you have to right-click at the display to see a menu. There is an option "Autoscale Y" which you should change (mark/unmark). Then you can click at the top scale number to edit it and also at the bottom scale number. You can set them freely. If you get lost with this, turn on the "Autoscale Y" and start again. The same applies for the horizontal scale except it is set as fixed scaling to keep all the samples visible. You can change this freely as well. Feel free to learn how they behave. These methods above apply to all graphical displays available in this software. Right-clicking at various places over the display will open up different submenus.

Do not leave the checking on if you do not use it.

If one needs a more specific downloading per each bank in the meter, please use the Meter Status page's Downloading utility.

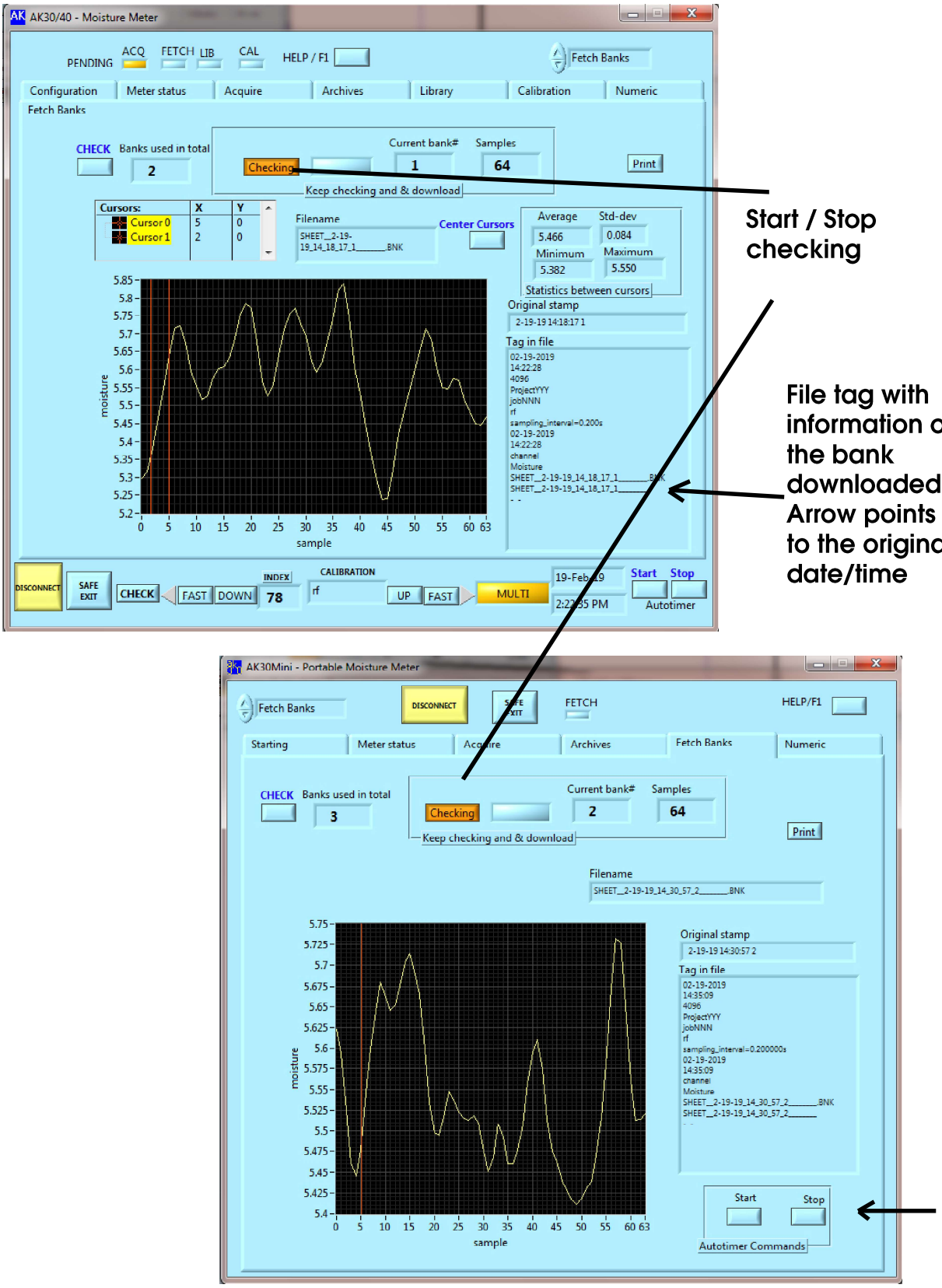


Figure 5a. The Fetch Banks page, AK30 and AK30Mini programs

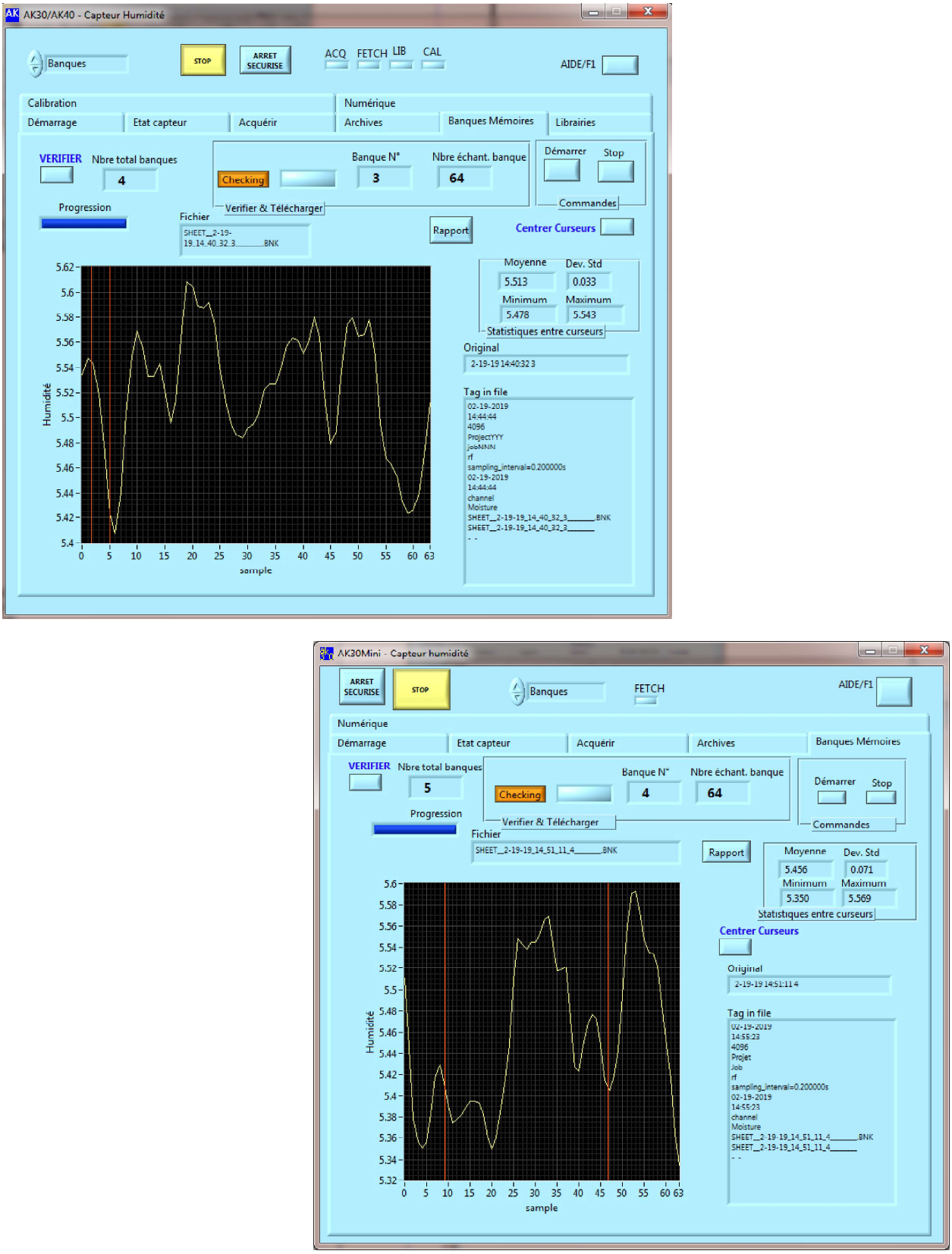


Figure 5b. The Fetch Banks page, AK30 and AK30Mini programs as French versions

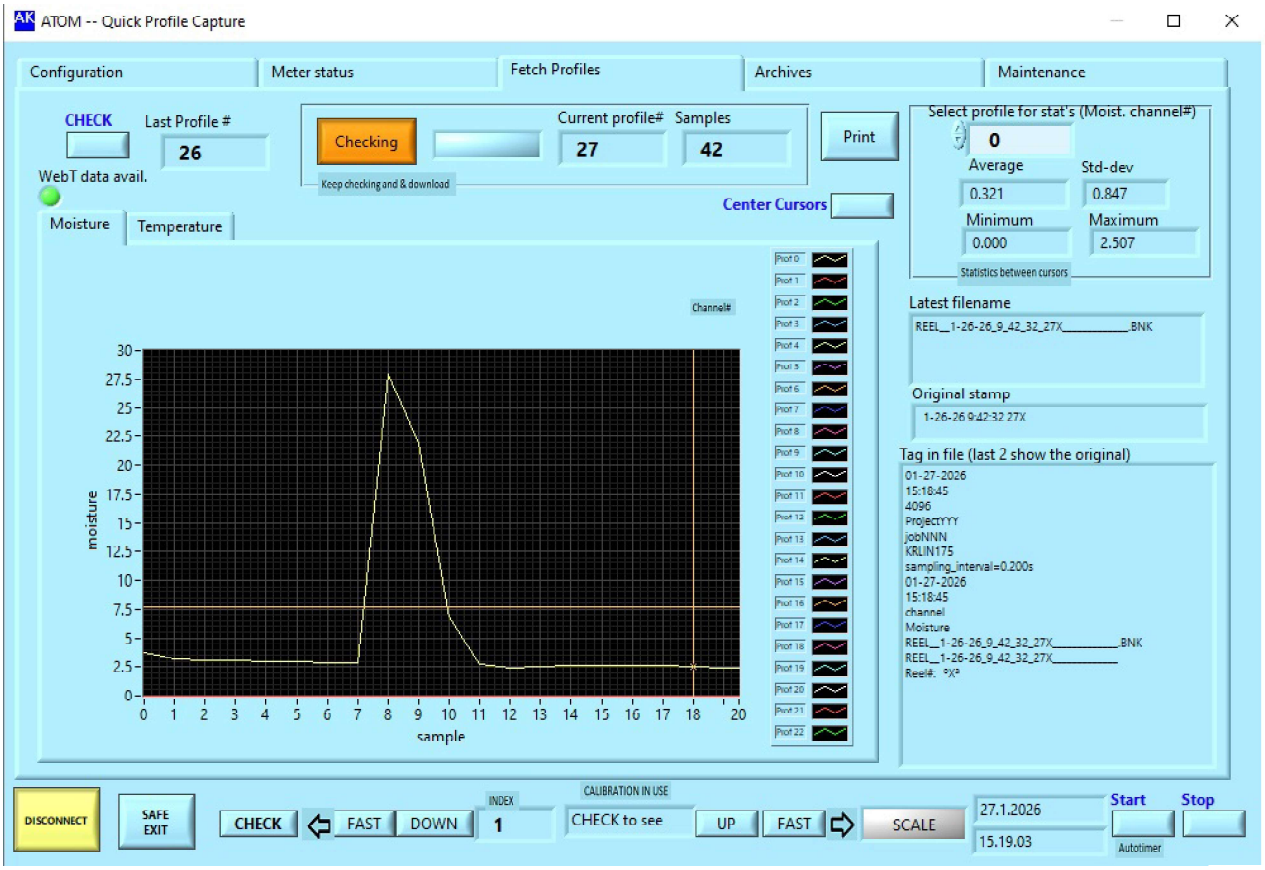


Figure 5c. The Fetch Banks page in ATOM. Note that if your meter is equipped with an infrared thermometer for web temperature and it has been taken into use as data interleaved (see Menu, Banks, More, WTON / WTOFF setting ON). Then the moisture and WebT data are carried together forward to the laptop and the data interleaving is sorted out. To see the web Temperature data, click on the tab selector.

6. Archives Page

You can retrieve and display any old data files saved during program runs on this page, even while some other operation is running in the background. On this page you have eight channel selectors, statistics displays for each channel, a graphical display and the Print button. By pressing one of the channel keys, you can retrieve any old data file as long as you know where it is and what is its name. The data is shown on the graphical display and the corresponding statistics are calculated automatically. You can move the cursors to proper points freely. The scaling is very much like on the Acquire or Memory Banks pages. In this way you can compare and study data and adjust the scaling to make it look best for printing. Refer to Figures 6.

The first two channels are actually fresh data from the Acquire operation. The first one is the real-time data which can be observed to progress all the time. The second channel is the last stopped acquired signal. They are copied directly from the Acquire operation with no files between.

6.1 Data files

When you run the Acquire operation you will have files with the following names. See below an example directory listing.

```
Data of last modify           size        file name
-------------------------------------------------------------------
03-07-2023  11:31 AM            28,984 HT0307231130420.ACQ
03-07-2023  11:30 AM            28,899 M0307123130424.ACQ
03-07-2023  11:30 AM            28,983 WT0307231130424.ACQ
03-07-2023  11:31 AM            28,908 XM0307231130421.ACQ
03-07-2023  11:30 AM            28,909 XT0307231130424.ACQ
03-07-2023  11:41 AM            28,899 M0307231140381.BNK
03-07-2023  11:42 AM            29,926 T0307231141553.BNK
-------------------------------------------------------------------
```

You may get a large number of files in the worst case. Therefore, it is good to know how to recognize them. The file name coding consists of a set of letters, a date time numbering, and a file type coding. The key to codes are as follows.

Code	signal
M	moisture

code	source
ACQ	acquired signal
BNK	memory bank download

code	format
ACQ	IRMA7 format, ASCII data as text
BNK	IRMA7 format, ASCII data as text
HTML	Report in HTML, mainly pictures and text

Date time code key:

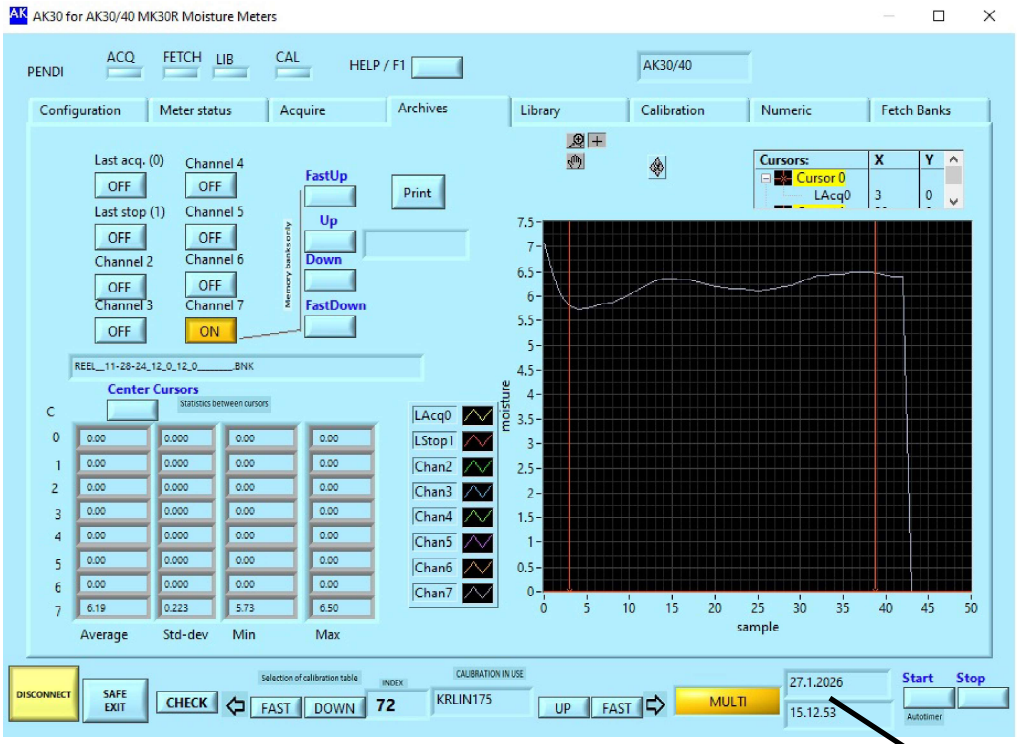
```
0307231141553
------              month, day and year
      ----          time in hours, minutes
          --        time in seconds
            -       a running random number
```

In this way the program produces files whose names are unambiguous but recognizable. Needless to say but it is advised to clean up the data file directory of unnecessary files regularly. Make backup copies to e.g. CD's before removing them. It is a good bookkeeping method to use various folders for different measurement projects or higher level tasks to keep the data separate.

Annotation

It might be tempting to add some text into various graphs while studying either signals coming in or after being analyzed with various methods. You can do it. It is allowed on all graphs **except** the **Acquire** graph. You can either write freely floating text or annotate certain data points into a curve. Right-click over the graph area and activate **Create annotation** option.

The Annotation name is the text becoming visible. Lock style has options: Free, Snap to All Plots and Snap to One Plot. Locked Plot is the resulting name of the plot selected. You can also tick in the boxes Hide arrow and Lock name if you wish. Try these out to see the effect. The annotation is visible in reporting too but is not saved otherwise. You can later move the annotation text to a better position by dragging it with the mouse. When you do not need the annotation anymore and want to clear it, right-click on the graph again and select Clear annotation or Clear All annotations.



Date and time fields

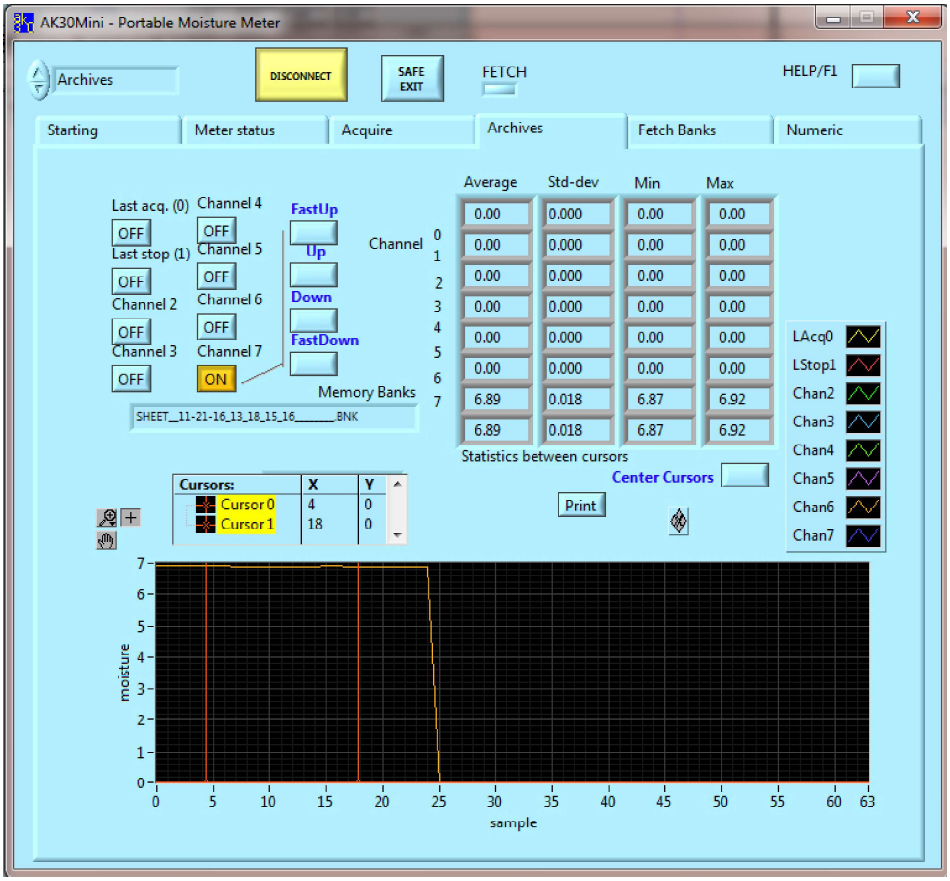


Figure 6a. The Archives page, AK30 and AK30Mini

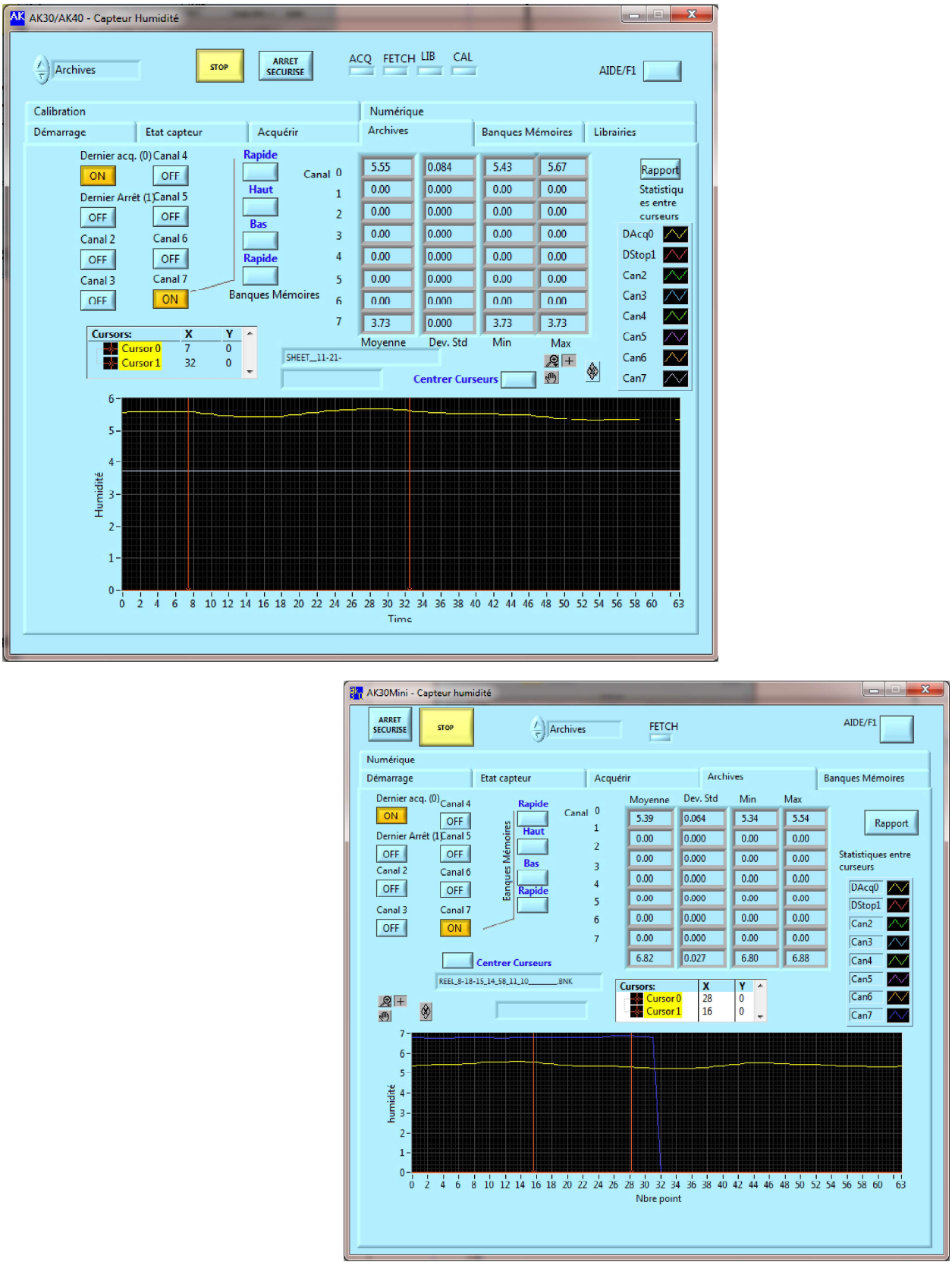


Figure 6b. The Archives page, AK30 and AK30Mini in French



Figure 6c. The Archives page in ATOM

7. Library Page

On the Library page you can download the **calibration library** in the meter, save it to a library file, load a library file to the program and upload the library to the meter. You can also upload and download single tables in the libraries. In this way, you can tailor the library in the meter (or some library file on disk) to match your requirements. The only way you can affect the contents of any calibration entry here is to change its name. You can finally print out the corresponding calibration entry in full with a graph seen on the screen. This may prove useful for your documentation. See Figures 7.

To download the meter's library, press the button "DOWNLOAD". You can always do this safely, no harm is done to the meter. Then, the library is in the program's memory replacing the otherwise empty library generated at the time of pressing the GO AHEAD button. You can now save the library to a file by pressing the button "Save lib". The file format is ASCII text which means you can read the file into Excel for further studying. Note, however, that the spreadsheet file formats are not compatible with this software. It is not recommended to be done in that way.

Uploading a library to the meter is a critical operation as it will wipe away the old library in the meter. Unless you know exactly what you are doing you may destroy the library. It is advised to keep copies of the current valid library at safe locations to prevent any disaster. The same danger lies in uploading single table entries but the damage is not total. Be careful! You can check the current library name in the meter at any time in the box "Calibration in moisture meter" (CHECK). No harm is done. If you wish to edit the name, do it in the text field and then send the new name to the meter by pressing SET. The meter AK30 does not yet save this change of configuration and needs to be performed manually in its Menu by pressing there the Save key.

Uploading a calibration table requires a little bit more mouse exercise. First, check the current calibration index in the meter by pressing the button CHECK right above the index counter window in the box "Calibration in moisture meter". As a result, the text field below, the index display and the calibration mode indicator are updated. This is the entry you are using for the Acquire operation right now. If you change it, it is better not to do any measurements at the same time. Press the keys UP, FAST UP, DOWN, FAST DOWN besides the index counter display to find the calibration you are interested in. This will change the current table in the meter but it should not be important at this time.

Then, go to the box "Calibration in PC library" and click the arrows up and down right at the left edge of the index counter to find the other calibration entry in the PC library. The corresponding calibration data and calibration curve are shown at the same time.

When happy with the selection, you can now either download a calibration from the meter by clicking the button DOWNLOAD under the word CALIBRATION or upload a calibration entry to the meter by clicking the button UPLOAD over the same word. The data is updated at once. If UPLOAD is done, the new calibration is saved to the AK30's nonvolatile memory.

In this way you can do complete tailoring of any library. It is advised that you change a little their calibration names to match the indices, if changed. A recommended practise is to make a backup copy of a new library by saving it. If changes are made to a library, it is recommended to change its name too.

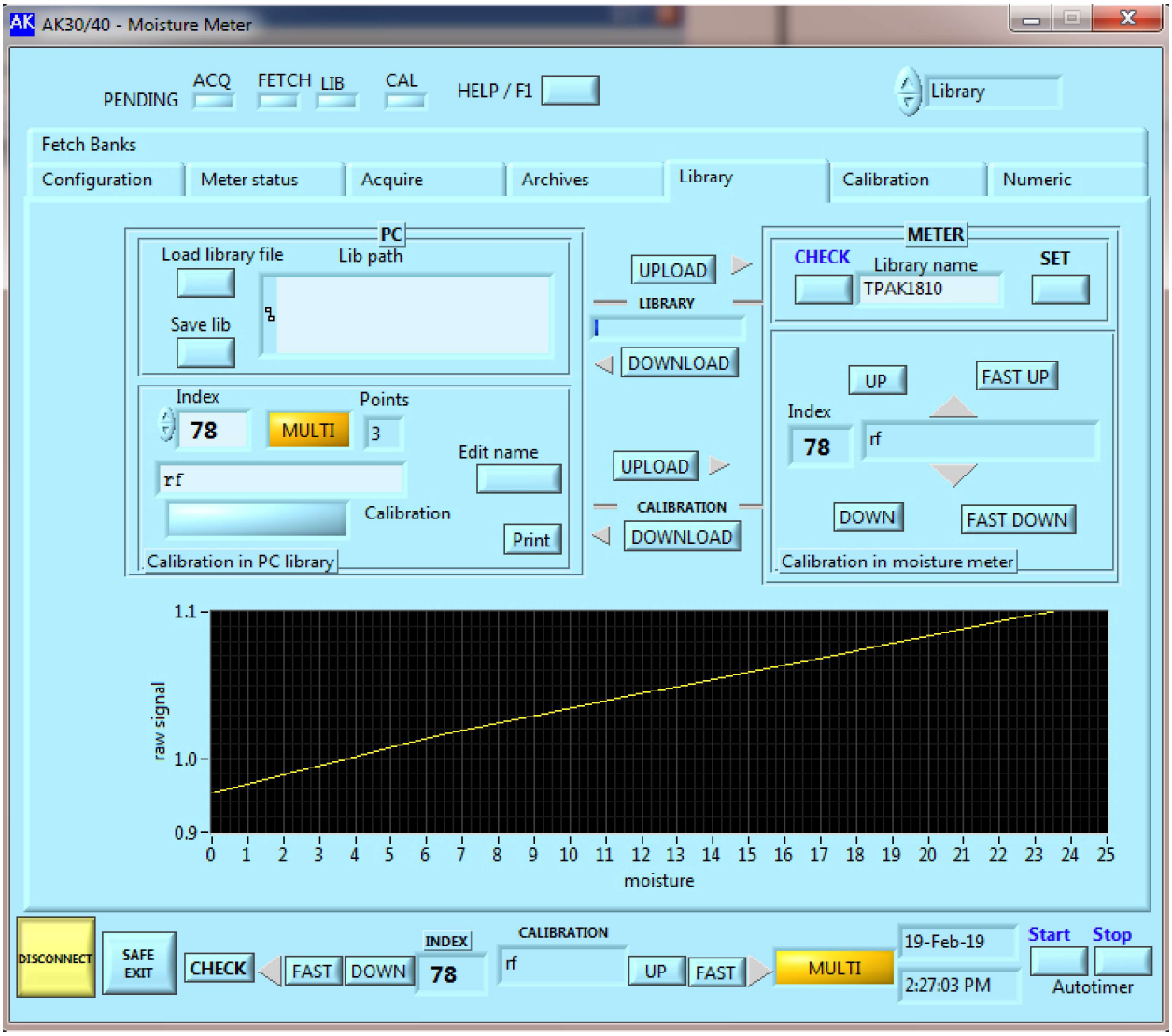


Figure 7a. The Library page, AK30 program only

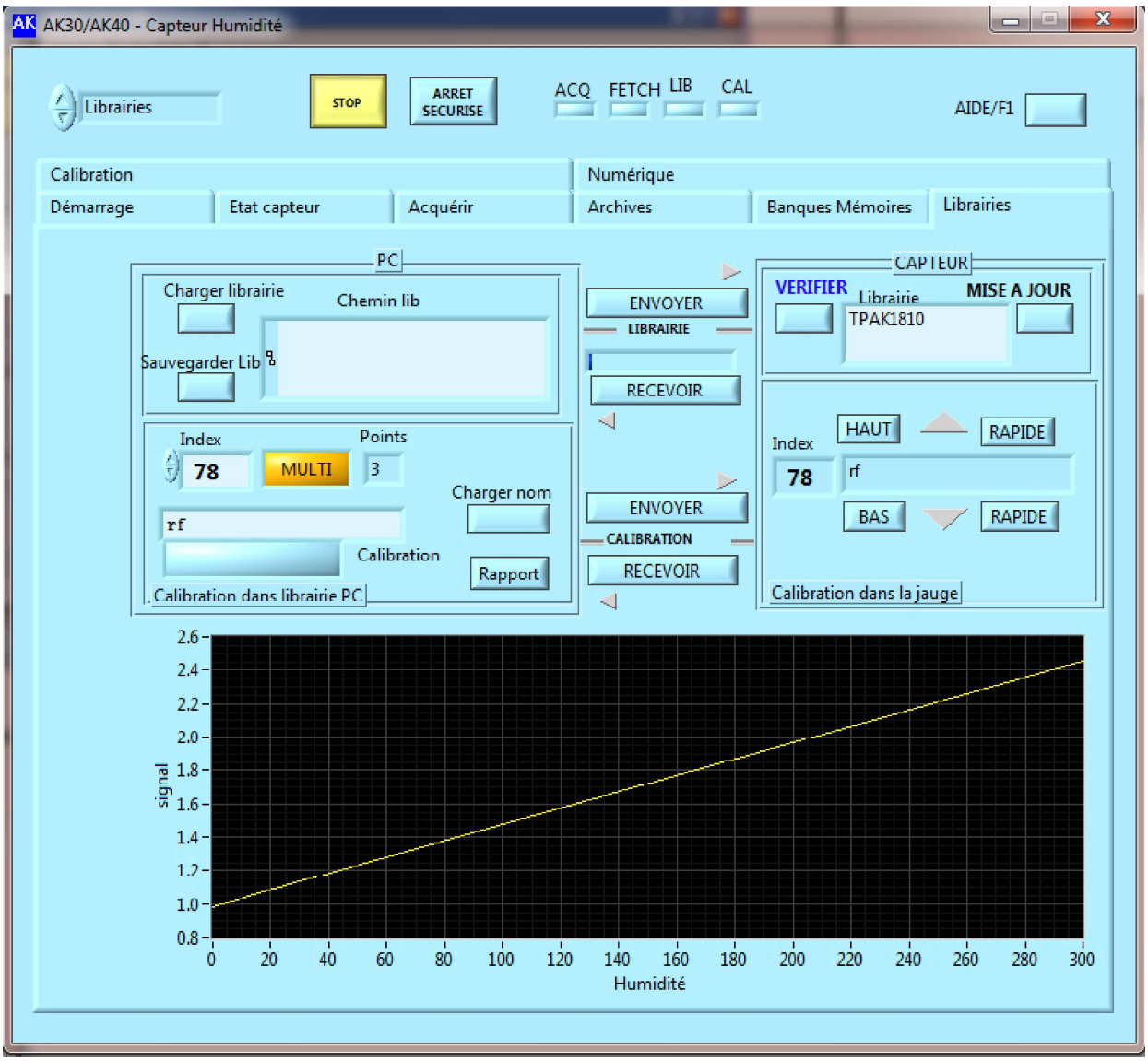


Figure 7b. The Library page, AK30 program only in French

8. Calibration Page

8.1 Regular Calibration Table Editing

Calibrations are usually made at field conditions with known moisture samples or in laboratory conditions in a climate chamber and with a laboratory balance. An oven for drying samples is usually required. Refer to the AK30 meter's user's manual for more details of actually making the calibrations. This part of the program allows you to feed in the generated data and to take into use the new table. The calibrations consist of point pairs (raw signal, moisture, maximum 10 of them). They form together a calibration curve linearizing the usually curved low-moisture end. Of these number pairs, only a number of points is in use (marked "Points in use"). The rest of the points can be left inactive. If you wish to use a calibration table for linearization, it is required to have 2 to 10 points in use. Deflection from this will cause invalid moisture data. Refer to Figures 8.

To start editing a calibration, select first a suitable calibration with the buttons at the bottom edge of the program display (CHECK/UP/DOWN etc.). We assume you already have the calibration point data available. Then, press the **GET calibration** button to copy to the program's memory for editing. You will immediately see a curve (if it can be displayed) and the first data point in the box marked "Calibration". Press the button "Edit" to start editing. You can edit the name of this calibration and the number of points in use. The calibration mode can be set to reflect the use of the calibration table (MULTI = use the table, SCALE = do not use it). If the mode is left as SCALE, the table is not in use but, instead, the **SCALE scaling** is used. That is not a linearization at all. The Point selector goes from 1 to 10 and you can fill in any points in any order. Just click the small arrows at the left edge of this control. Do not leave any empty points when finished! Also, the signal/moisture values must be increasing when the Point increases, else you will get a folded curve and the future moisture values will be quite useless. Adjust the "Points in use" control to reflect the actual number of points to be used in the calibration. Press again the Edit button to stop editing. The curve is now updated and you can make a check against the curve you have possibly obtained earlier in your calibration measurements. If you are happy with this, you can update the calibration in the meter by pressing the UPDATE button. You are ready to use the new calibration.

If you are doing real-time calibration with the meter in the climate chamber or on-line and you have the sample in front of the meter properly placed, you can, in the Edit phase, get a signal from the meter by pressing the GET signal button. The obtained signal is displayed in the small window besides the button. If you accept this signal for the current point, press the Apply button which copies the signal value to the signal field. Then you have to fill in the corresponding moisture reading for this signal. Of course, these buttons are active **only while editing**.

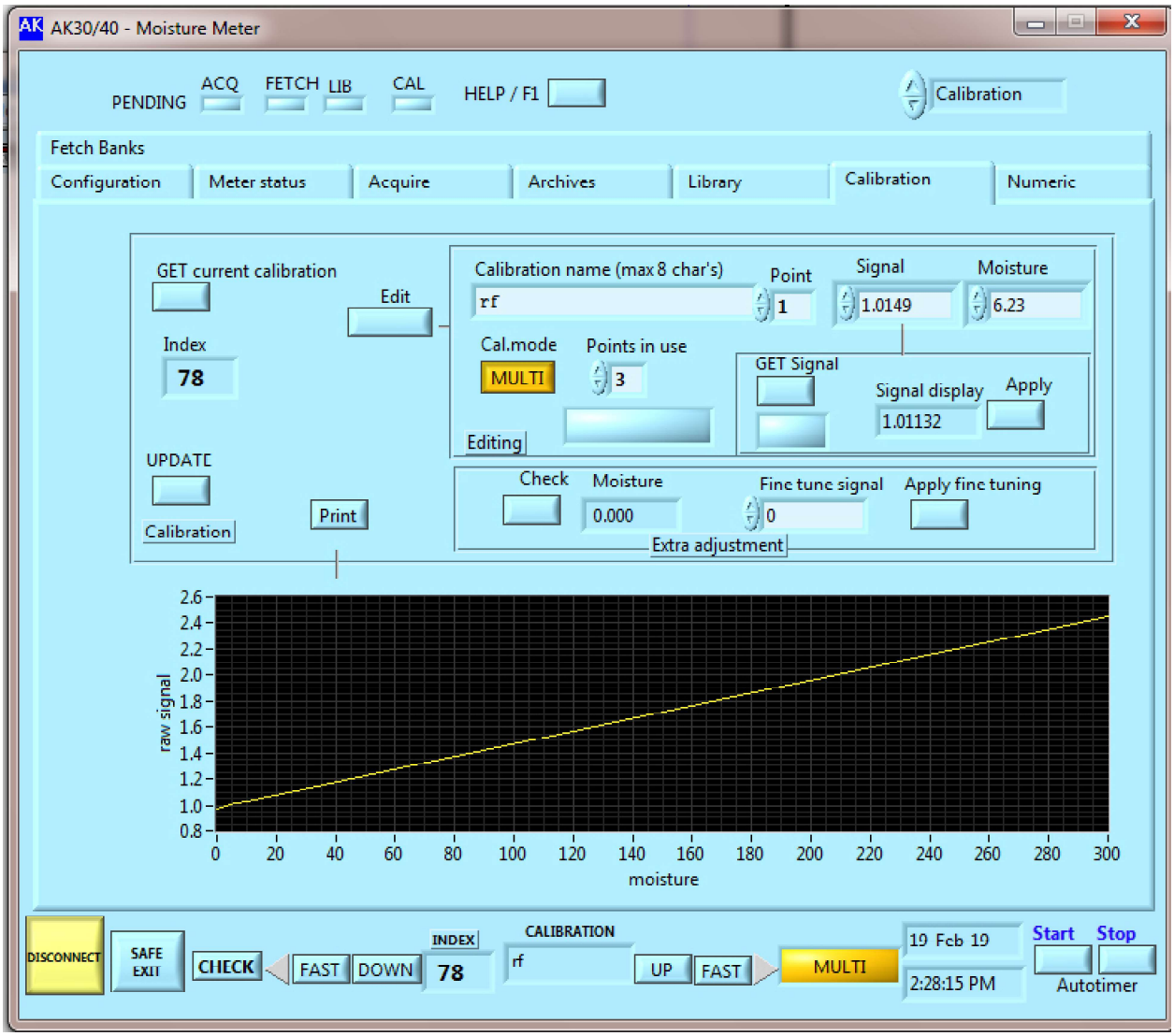


Figure 8a. The Calibration page, AK30 only

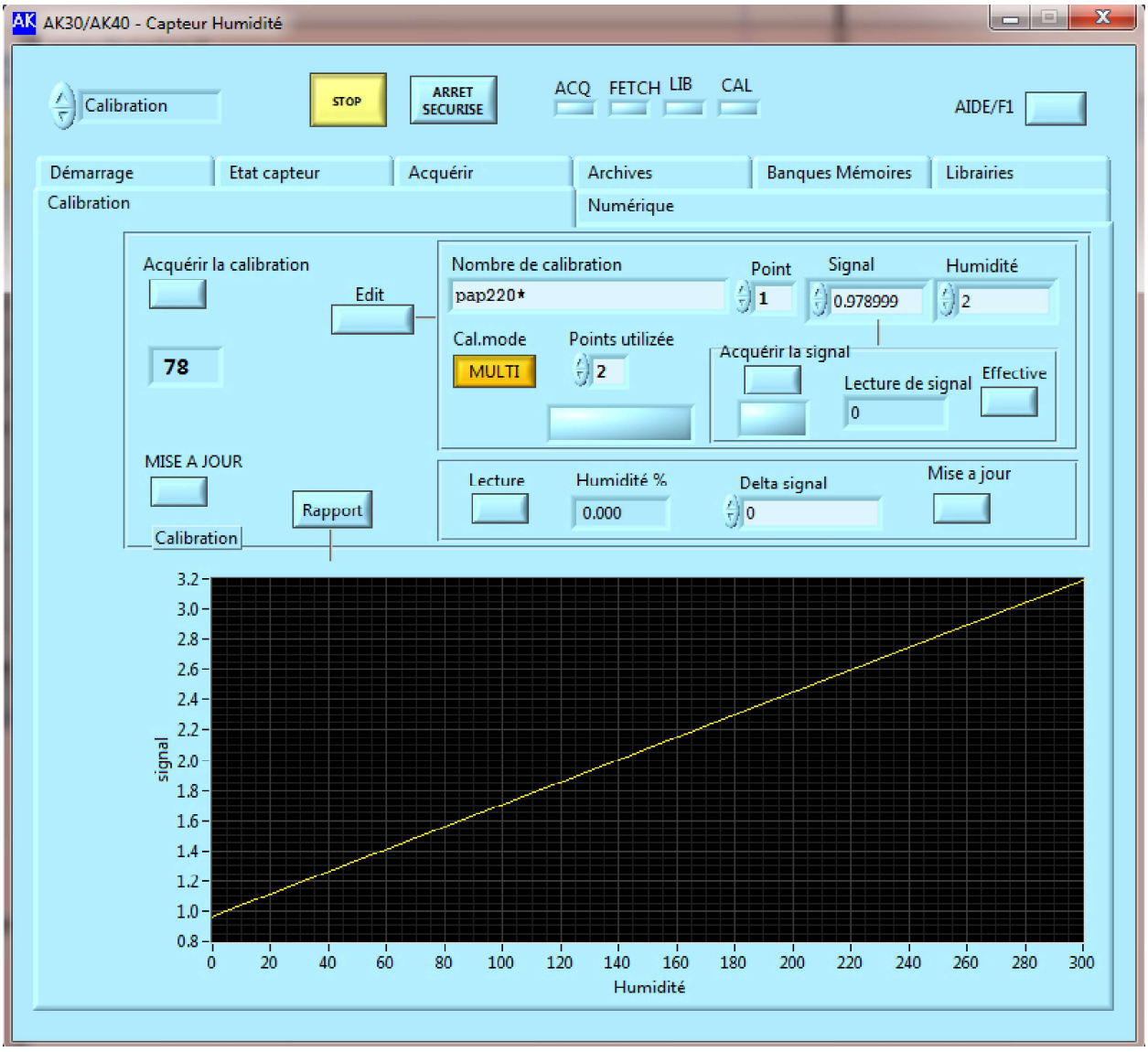
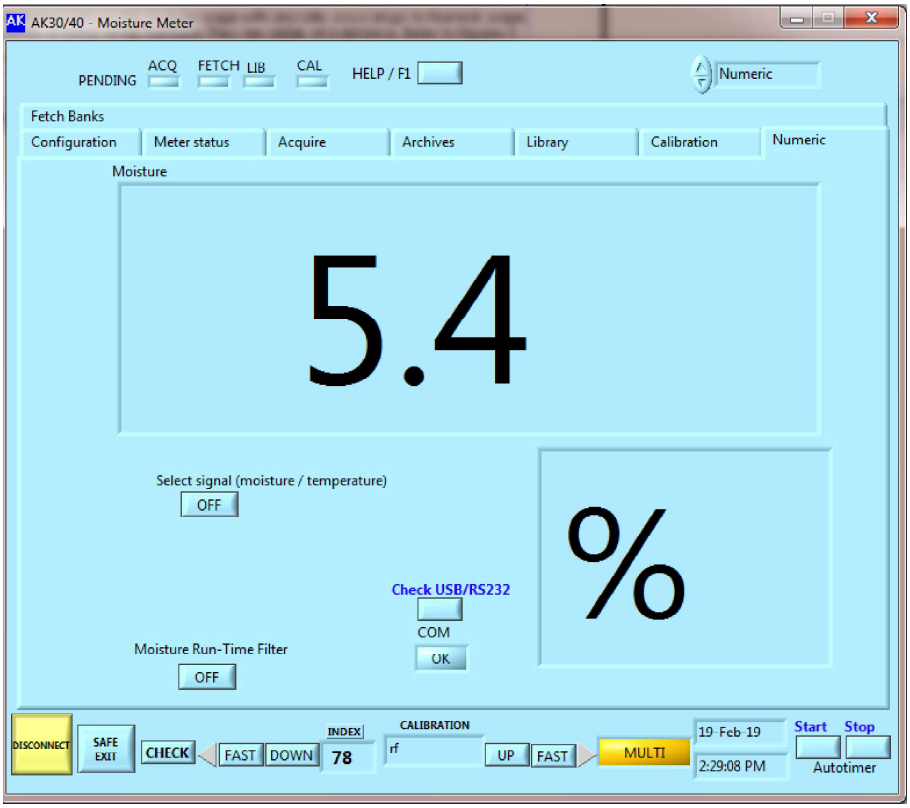


Figure 8b. The Calibration page, AK30 only, French version

9. Numeric Indicator Page

When you are acquiring data on the Acquire page with any rate, you can go to Numeric page and see the moisture reading as big numbers. They are visible at a distance. Refer to Figures 9.



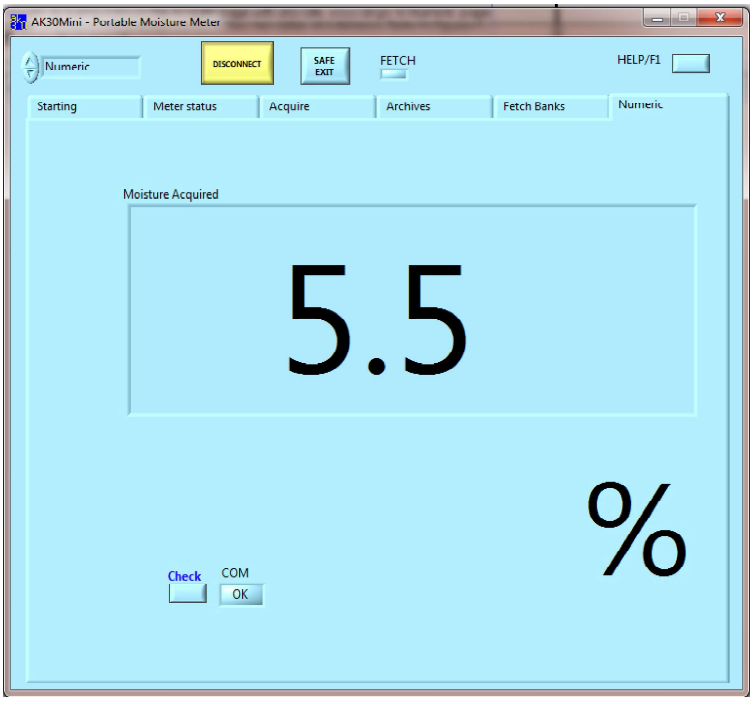


Figure 9a. The Numeric indicator page, AK30 and AK30Mini

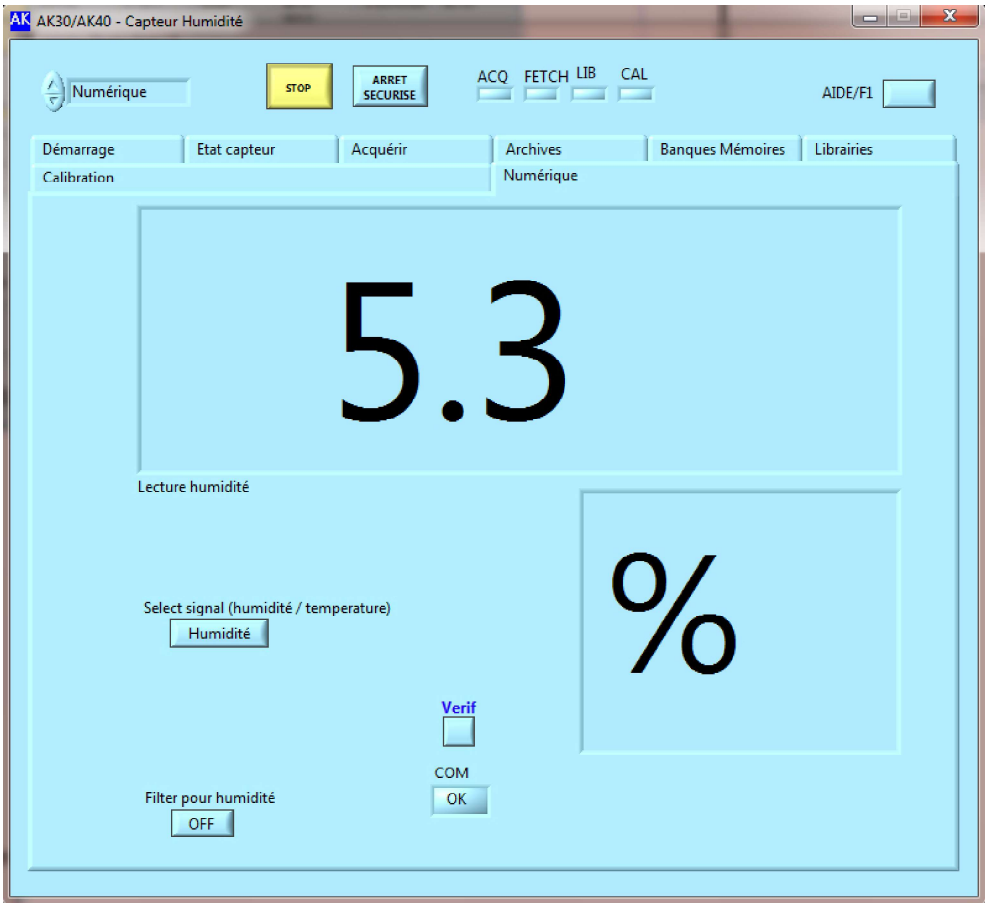




Figure 9b. The Numeric indicator page, AK30 and AK30Mini, French version

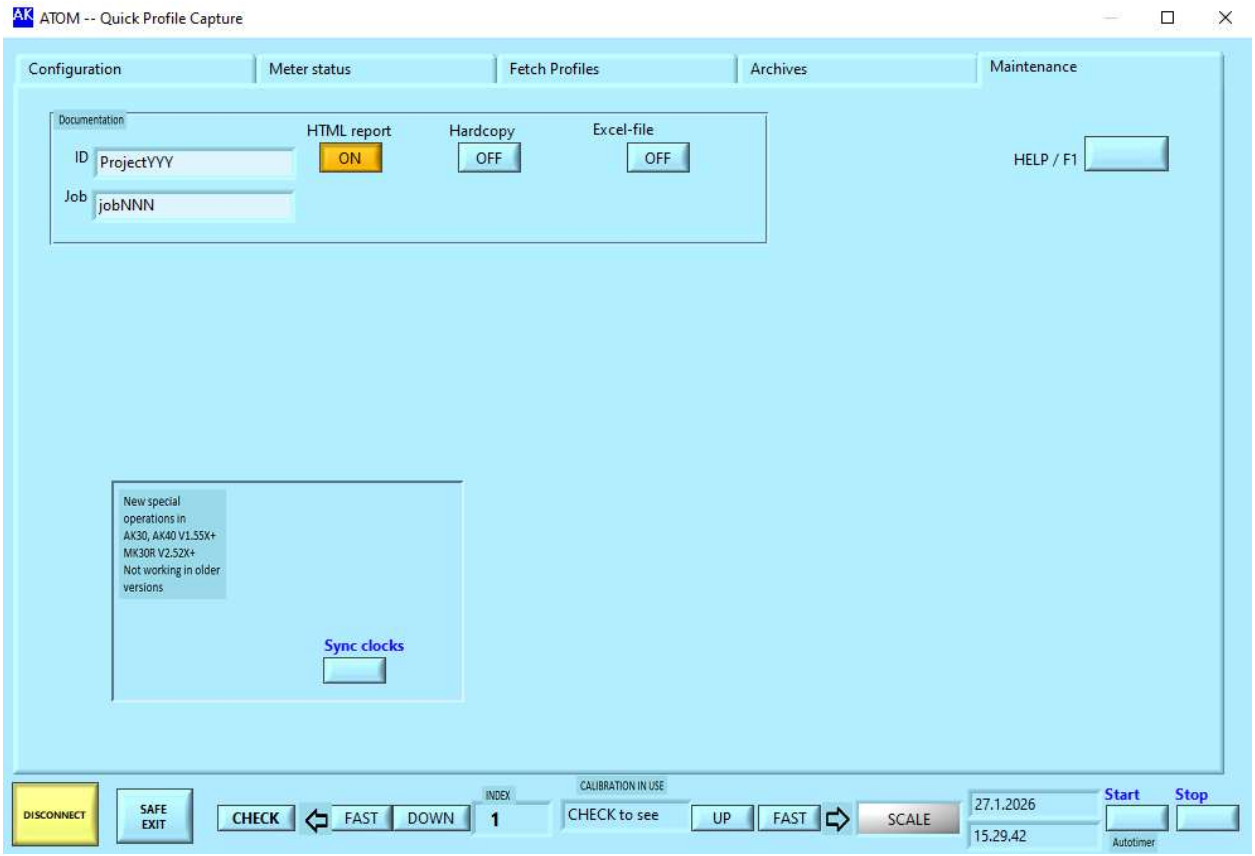


Figure 9c. The Maintenance page in ATOM. It does not have the Numeric page as it does not have the Acquire page either

10. OFF-LINE Use

The AK30 software is designed to be used with AK30 moisture meters. Without a meter connected to the PC and the program, delays, invalid data, ineffective commands etc. will appear on some of the pages if any UPDATES or alike are started. The Archives page still works without a meter for retrieving old data.

11. Wireless Bluetooth Communications

The AK30 software can utilize the wireless technology offered by Bluetooth. Your meter is equipped with a Bluetooth capability (standard in AK30 and default in MK30R). You can also use any Bluetooth add-on package that will offer a serial port capability to your PC. You can also use the Bluetooth utility in most laptops but with a shorter range of operation. They usually offer only a range of 10 m max.

Install the software that came with the PC Bluetooth USB dongle. Then plug in the dongle and launch the Bluetooth program for setting up the new serial port.

Turn on the meter and if it has a separate Bluetooth module, turn that on too and connect it properly at the meter end. In the program, ask for locating any nearby Bluetooth capable units. Soon a list of them is visible showing also your meter to be identified with the serial number. Click on that and configure it to offer the serial port service. If using your own laptop's Bluetooth, you may need to type in the Bluetooth PIN security code which is **0000** for all our products when shipped. The dongle shipped is automatically linked to the meter delivered and does not require any PIN codes. Then you can open up the service for this new serial port and memorize the port name (like COM7 or COM15 etc.). In AK30 AK30Mini software, you can, on the configuration page select this new port name to be used in the program. When you go into ON-LINE in either of these programs, the Bluetooth connection is established and the red indicator light on the AK30 panel is lit. Please, be patient with this since creating a new service in Bluetooth will take a few seconds. Do not expect it to work fully at the same moment. After that, you can use it normally

When you press the STOP button, the light goes out.

Note

The recent advances in the AK30 / MK30R electronics and software has given the new RN41 Bluetooth module which is easier to install and use compared to the old systems. The Windows driver for it is the same as with the galvanically isolated for the chip FT232RL in common use. If the link fails you do not need to turn off the program, **just press the RESET button on the side of the Bluetooth dongle**. The red light both on the dongle and in the AK30 meter should turn on in a few seconds.Then you can continue with the work in the program acquiring more data. The COMxx port is maintained and your data is not endangered.

12. Error Message Dialogs

12.1.1 Some of the Most Important Error Messages

While starting or using the software you may encounter the following error situations. Below we explain how to proceed at that time.

12.1.2 Incorrect Asynchronous Serial Port

This is the most common error caused by selecting a serial port which does not exist or is already reserved for some other application. Press the Continue button and check the port. Then, try again. Refer to Fig. 12-1.

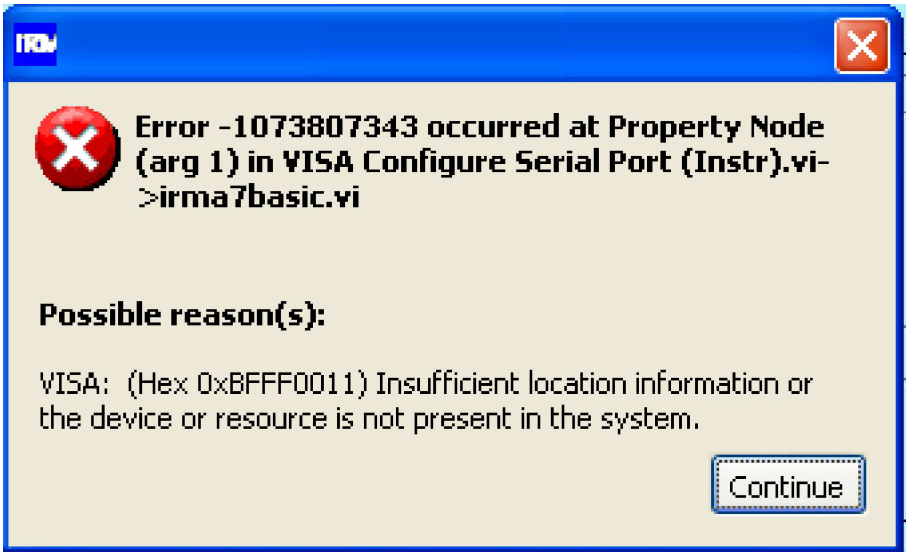


Figure 12-1. The case of incorrect serial port (a VISA-related message)

12.1.3 Incorrect Path or Nonexistent File

This is the direct result of not defining and setting a sensible path for data files. Press Continue and check what you have done on the Configuration page. Save settings when happy with them to avoid this to happen again. Refer to Fig. 12-2.

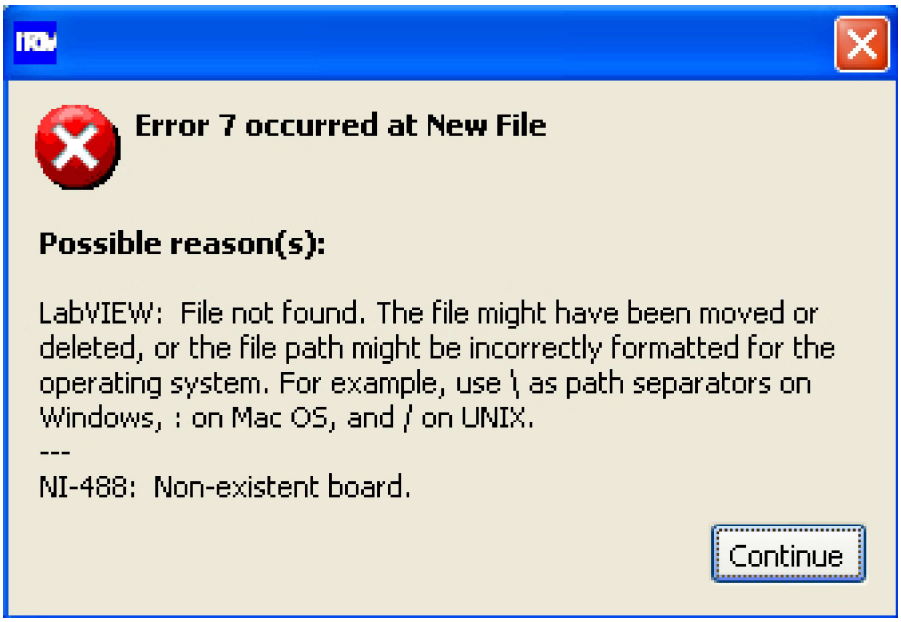


Figure 12-2. The case of nonexistent path or file

12.3.4 User Interrupt or Nonexistent File

This is the direct result of canceling retrieval of any data file to, for example, the Archives page. Press Continue and press again the file name button to clear it. This might also happen if you tried to access a file via network but met some access restriction. Refer to Fig. 12-3.

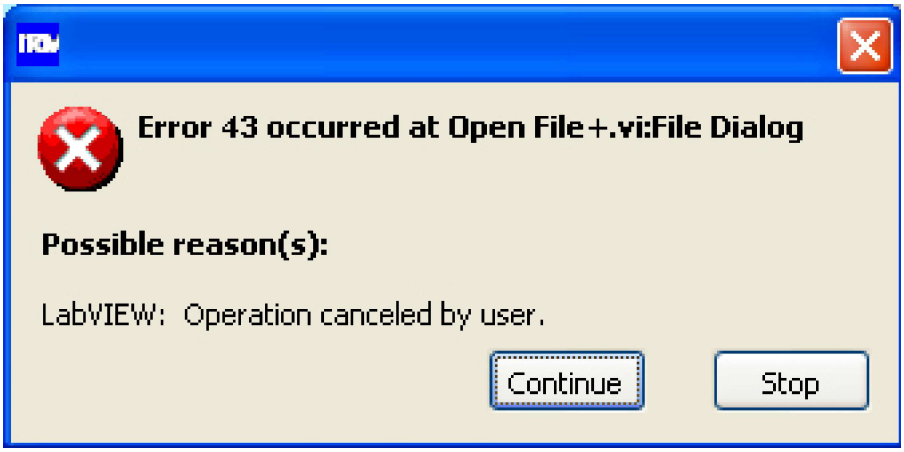


Figure 12-3. The case of User interrupt when accessing a file

12.1.5 Trying to Open a Nonexistent Settings File

This is the result of not finding any file containing the basic settings of this program (of type "ini") . Press Continue and check all program settings. Then, on the Configuration page, press the Save settings button. The error message will not be displayed again after this. Refer to Fig. 12-4.

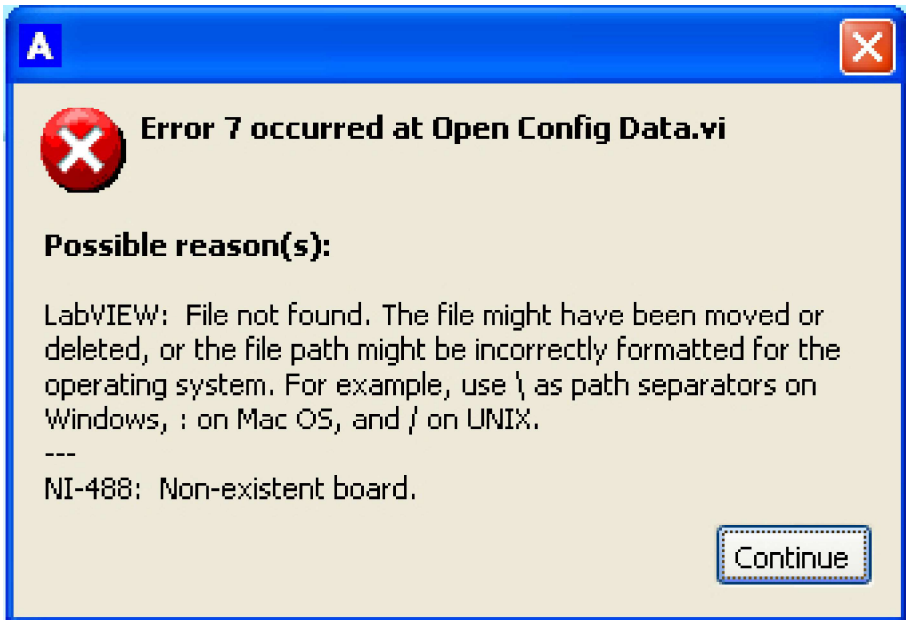


Figure 12-4. The case of nonexistent settings file (.ini file)

13. Note for Users

This being a new version of software, it is recognized the need of having user feedback. If you ever meet any bugs or problems with this software, check first our web site to see if the latest version available there has this bug fixed. You can then download that version. Else, you can report all problems to us at support@visilab.fi. Thank you for your cooperation.

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